### QUARTERLY REPORT ST. CHARLES COUNTY WELL FIELD MONITORING PROJECT

GRANT NO. DE-FG05-890R21864

Prepared by: Stanley Remington April, May and June, 1996

### MONTHLY REPORT

APRIL 1996

BY

Stanley M. Remington
Consulting Hydrologist

### I. CHEMICAL ANALYSES

The results of the yearly analyses of all the pumping wells and observation wells taken by the Department of Energy have been received. I took only two samples, one from RMW-2 and one from PW-9. These latter results are appended. These samples were taken on March 21, 1996. A slightly elevated reading of 36 +/- was noted for PW-9. However a total uranium count of less than 0.005 was obtained. This would indicate that an error or outside contamination occurred. This is not uncommon for gross beta readings. All of the readings or results were reported in picocuries per liter. No other abnormal results were noted. yearly samples measure several chemical parameters normally not measured. So the conclusion would be, that NO DANGER EXISTS FOR IMMEDIATE CONTAMINATION of the St. Charles County well fields and none is anticipated. RMW-2 is located halfway between the quarry and well number PW-9 and no contamination has yet reached this observation well for the past 50 years since hazardous waste products were dumped into the quarry. In fact no hazardous substances have ever been detected south of the Femme Osage Slough.

The results of the sampling of the treated water from the raffinate pits were received and are appended. All of the results showed that the treatment procedures are

working, since all of the chemicals analyzed for were well below the NPDES limits.

Well number PW-3 was sampled by me on April 26, 1996.

I sampled this well because of an abnormally high reading of 130 pCi/l was obtained on September 28, 1995. (See explanation below)

Appended is the Quarterly Site and Quarry Water Treatment Plant Effluent Data Summary - Pirst Quarter 1996. This was received from the Department of Energy.

### II. CHEMICAL ANALYSIS OF HIGH GROSS BETA READINGS FOR PW-3

Some high gross beta readings were noted in the Fourth Quarterly Environmental Data Summary of 1995 by the DOE. A letter of explanation was sent to Mr. Joe Nichols who in turn sent it to me for an analysis. The letter is appended. A reading of 130 pCi/l for well number PW-3 (PWO3 in the DOE letter) was noted from a sample taken on September 28, 1995. A subsequent sample was taken during December 1995 which showed a reading of only 5.4 pCi/l, the normal range for this well. In analyzing the treatment for the raw water coming in from all of the wells at the treatment plant on the same day, that is September 28,

1995, no abnormal reading of the gross beta was noted. The conclusion is that the sample itself was contaminated for some reason. Since the combination of all the well waters was normal and a subsequent reading of 5.4 pCi/l was noted three months later, and examining the history of the gross beta readings for PW-3, it can be concluded that no contamination of the well itself has occurred. This is also true of the two GW wells mentioned in the letter. As mentioned above, no real contamination has ever been detected south of the Femme Osage Slough. There are some good geological and chemical reasons for this occurrence. I have discussed this in past reports, and the DOE has made the same conclusions. Therefore I am not concerned with the occasional high readings detected by the DOE and me. They have invariably been errors or contaminated sample bottles causing the abnormal readings.

### IV. HYDROGRAPHS

Appended are hydrographs of the pumping wells of the St.

Charles County well field. As noted a sharp rise in ground water levels occurred last spring and early summer when the well field was flooded. Since then the water table has resumed its normal range.

### V. FUTURE PLANS

I will sample well number PW-2 during May 1996 and then well number PW-4 the following month to check on any possible high gross beta readings.

### VI. MISCELLANEOUS

Appended is the St. Charles County Monthly Water Sales Report for the month of March 1996.

### AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

April 16, 1996

Stanley M. Remington 956 Broadmoor Lane St. Charles, MO 63301

RE: ATAS #15356.01 Weldon Spring

Dear Mr. Remington:

Enclosed is the analytical report for the sample received in our laboratory on April 9, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr Project Manager

Enclosures

JAC/dms

STANLEY M. REMINGTON CLIENT:

1535601RA(247) REPORT:

919 BROADMOOR LANE

DATE : 04-16-96

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER **#15356** ATAS EPISODE : DATE SUBMITTED: 04-09-96

WELDON SPRING PROJECT REF. :

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
NP-ES24-040996-C	15356.01	GROSS ALPHA GROSS BETA TOTAL URANIUM (mg/L)	5 +/- 5*
NP-ES24-040996-C	15356.01		16 +/- 12*
NP-ES24-040996-C	15356.01		<0.005

VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.960.

L/L= PICOCURIES PER LITER

q/L = PARTS PER MILLION(PPM)

CLIENT:

STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 1535601X(247)

DATE : 04-16-96

SAMPLE MATRIX : WATER ATAS # : 15356.01

DATE SUBMITTED: 04-09-96

PROJECT : WELDON SPRING : NP-ES24-040996-C SAMPLE ID

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	method Reference
		INC	RGANICS		
NITRATE-SPEC.	1.05	mg/L	10.3	04-10-96	SM 418B
		1	(ETALS		
ARSENIC CHROMIUM LEAD MANGANESE MERCURY SELENIUM	5.0 1.0 3.0 1.0 0.1 5.0	ug/L ug/L ug/L ug/L ug/L ug/L	ND ND ND 2.1 ND ND	04-12-96 04-12-96 04-12-96 04-12-96 04-12-96 04-12-96	SW 6010 SW 6010 SW 6010 SW 6010 SW 7470 SW 6010

CLIENT: STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301 ATTN: STANLEY M. REMINGTON

REPORT: 1535601X(247)

DATE : 04-16-96

### QA/QC

DESCRIPTION		<u>PARAMETER</u>	RESULTS	
METHOD BLANK	04-12-96	ARSENIC	<5.0	ug/L
METHOD BLANK	04-12-96	CHROMIUM	<1.0	ug/L
METHOD BLANK	04-12-96	LEAD	<3.0	ug/L
METHOD BLANK	04-12-96	Manganese	<1.0	ug/L
METHOD BLANK	04-12-96	MERCURY	<0.1	ug/L
METHOD BLANK	04-12-96	SELENIUM	<5.0	ug/L
METHOD BLANK	04-10-96	NITRATE	<1.0	mg/L
CONTROL SPIKE	04-12-96	ARSENIC	107 %	RECOVERY
CONTROL SPIKE	04-12-96	CHROMIUM	98 %	RECOVERY
CONTROL SPIKE	04-12-96	LEAD	100 %	RECOVERY
CONTROL SPIKE	04-12-96	MANGANESE	99 %	RECOVERY
CONTROL SPIKE	04-12-96	MERCURY	93 🕏	RECOVERY
CONTROL SPIKE	04-12-96	SELENIUM	104 %	RECOVERY
CONTROL SPIKE	04-10-96	NITRATE	102 %	RECOVERY

CLIENT: STANLEY M. REMINGTON

REPORT: 1535601EX(247)

919 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 04-16-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER ATAS # : 15356.01 DATE SUBMITTED: 04-09-96 DATE EXTRACTED: 04-10-96 DATE ANALYZED: 04-10-96

METHOD REF. : SW846-8090, EPA METHODOLOGY PROJECT : WELDON SPRING

SAMPLE ID : NP-ES24-040996-C

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	reporting <u>Limit</u>	RESULTS
2,6 DNT	0.0105	DM
2.4 DNT	0.0211	DM

### OA/OC SURROGATE RECOVERY

62 % DECACHLOROBIPHENYL (30-150) 79 % TETRACHLORO-M-XYLENE(30-150)

REPORT:

DATE : 04-16-96

1535601EX(247)

CLIENT:

STANLEY M. REMINGTON

919 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

: METHOD BLANK ATAS #

DATE SUBMITTED: 04-09-96 DATE EXTRACTED: 04-10-96 DATE ANALYZED: 04-10-96

METHOD REF. : SW846-8090, EPA METHODOLOGY

: WELDON SPRING PROJECT : METHOD BLANK SAMPLE ID

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

### REPORTING

EXPLOSIVE	LIMIT	RESULTS
2,6 DNT	0.010	ND
2,4 DNT	0.020	ND

### OA/OC SURROGATE RECOVERY

DECACHLOROBIPHENYL (30-150) 65 **%** 75 % TETRACHLORO-M-XYLENE(30-150)

CLIENT: STANLEY M. REMINGTON

REPORT: QC0416EX(247)

919 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 04-16-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : LABORATORY CONTROL SAMPLE

DATE SUBMITTED: 04-09-96 DATE EXTRACTED: 04-10-96 DATE ANALYZED: 04-10-96

METHOD REF. : SW846-8090, EPA METHODOLOGY PROJECT : WELDON SPRING SAMPLE ID : LABORATORY CONTROL SAMPLE

	LCS % REC.	LCSD % REC.	RPD	
2,6 DNT	82 %	80 %	2.5 %	
2,4 DNT	104 %	108 %	3.8 %	

## **CUSTODY / AUTHORIZATION FORM** WELDON SPRING SITE REMEDIAL ACTION PROJECT (WŞSRAP) 7295 HIGHWAY 94 SOUTH, ST. CHARLES, MO 63304 TELEPHONE (314) 441 – 8086 TELEX (314) 447 – 0803 ENVIRONMENTAL SAMPLE CHAIN-8

Ĭ[[	Validation Documentation										ES&FL#J.1.1, Ker.6, EFV@er 14/92	Elivaire 1402
WS	WSSRAP Contact:	a.T.	LatyP.O. #:	*					пισα	Dept/Cost Code:		
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Req	Request Number:	ני	ırııarou	Turnaround Time:	Standard [	dard	Accepted	political	Priority	Urgent	[ ] Emer	Emergency
*	Sample 1D		OC	Date Sampled	Matrix	Court.	Preserv.			l'arumelers	4-146 1-64-1	4-9-96 AL-69-1K2 (YA)
	NP.ES24. 040996-C	ڹ		4/4/94	Water	1-1 11ter	HN03	As, Cr,	As, Cr, Hg, Mn, Se, Pb		15356.01	=
					_ <u>_</u>	1-1 liter	Ice	2.4-DNT	Ţ			
[			-			1-1 litter H2S04	H2S04	NO3				<u> </u>
1-	<b>-</b>		<u> </u>	>	->	1-4 liter HN03	HIN03	U, Gross	alpha,	Gross beta	→ →	<u> </u> 
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## AUTHORIZATION

K-F Proturement

Date

ES&I

Site Shipping Officer

Oale o

Date

### AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

April 9, 1996

Stanley M. Remington 956 Broadmoor Lane St. Charles, MO 63301

RE: ATAS #15187.01-#15187.02

Weldon Spring

Dear Mr. Remington:

Enclosed are the analytical reports for the samples received in our laboratory on March 21, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr Project Manager

Enclosures

JAC/dms

ATAS

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, NO 63301

ATTN: STANLEY M. REMINGTON

DATE : 04-09-96

SAMPLE MATRIX: WATER

ATAS # : 15187.01

PROJECT : WELDON SPRING

SAMPLE ID : RMW-2

DATE SUBMITTED: 03-21-96
DATE EXTRACTED: 03-22-96
DATE ANALYZED: 03-27-96

REPORT: 15187018(247)

MRTHOD REF. : SW846-8270

### RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

		RESULTS			RESULTS
<u>SENIVOLATILES</u>	RL	(uq/L)	SENIVOLATILE	<u> RT.</u>	(uq/L)
B .	•				
PHENOL	10	ND	3-NITROANILINE	50	ИD
BIS(2-CHLOROETHYL)ETHER	10	ND	ACENAPRTHENE	10	ND
2-CHLOROPHENOL	10	מא	2,4-dinitrophenol	50	ND
1,3-Dichlorobenzene	10	ND	4-NITROPHENOL	50	ND
1,4-dichlorobenzene	10	ND	2,4-DINITROTOLUENE	10	ND
BENEYL ALCOHOL	10	ND	dibeneofuran	10	ND
1,2-dichlorobenzene	10	ND	DIETHYLPHTHALATE	10	ND
2-METHYLPHENOL	10	ND	4-chlorophenyl-phenylether	10	ND
BIS (2-CHLOROISOPROPYL) ETHER	10	ND	PLUORENE	10	ND
4-methylphenol	10	ND	4-nitroaniline	50	ND
"n-nitroso-di-n-propylamine	10	ND	4,6-dinitro-2-methylphenol	50	ИD
HEXACHLOROETHANE	10	ND	n-nitrosodiphenylamine	10	ND
<u>N</u> ITROBENZENE	10	ND	4-BROMOPHENYL-PHENYLETHER	10	ND
OPHORONE	10	ND	HEXACHLOROBENZENE	10	ND
4-DIMETHYLPHENOL	10	מא	PENTACHLOROPHENOL	50	ND
2-NITROPHENOL	10	ND	PHENANTHRENB	10	ND
BENZOIC ACID	50	ND	ANTHRACENE	10	ND
BIS(2-CHLOROETHOXY)METHANE	10	ND	DI-N-BUTYLPHTHALATE	10	ND
2,4-DICHLOROPHENOL	10	ND	FLUORANTHENE	10	ND
1,2,4-TRICHLOROBENZENE	10	ND	PYRENE	10	ND
NAPHTHALENE	10	ND	BUTYLBENZYLPHTHALATE	10	ND
4-CHLOROANILINE	10	ND	BIS(2-ETHYLHEXYL)PHTHALATE	10	ND
HEXACHLOROBUTADIENE	10	ND	3,3-'DICHLOROBENZIDINE	20	ND
4-CHLORO-3-METHYLPHENOL	10	ND	BENZO (A) ANTHRACENE	10	ND
2-METHYLNAPHTHALBNE	10	ND	CHRYSENE	10	ND
= HPXACHLOROCYCLOPENTADIENE	10	ND	DI-N-OCTYLPHTHALATE	10	. ND
2,4,6-TRICHLOROPHENOL	10	ND	BENEO (b) FLUORANTHENE	10	ND
#2,4,5-TRICHLOROPHENOL	50	ND	BENZO ( k.) FLUORANTHENE	10	ND
2~CHLORONAPHTHALENE	10	ND	BENZO(4)PYRENE	70	ND
2-NITROANILINE	50	ND	DIBENZO(A, H) ANTHRACENE	10	ND
>IMETHYLPHTHALATE	10	ND	INDENO(1,2,3-CD)PYRENE	10	ND
2,6-DINITROTOLUENE	10	ND	HENZO(G, H, I) PERYLENE	10	ND
	10	ND			

### QA/QC SURROGATE RECOVERIES

NITROBENZENE-d5(35-114)	58 %	2-FLUOROBIPHENYL(43-116)	62 %
TERPHENYL-d14(33-141)	93 %	PHENOL-d5(10-94)	18 🗞
2-FLUOROPHENOL(21~100)	29 %	2.4.6-TRIBROMOPHENOL(10-123)	70 %

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT

<sup>3 =</sup> ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

<sup>-</sup> SURROGATE RECOVERY OUTSIDE OF QC LIMITS

CLIENT: STANLEY M. REMINGTON

956 BROADHOOR LANE

ST. CHARLES, NO 63301

ATTN: STANLEY H. REMINGTON

REPORT: 15187015(247)

DATE : 04-09-96

SAMPLE MATRIX: WATER

ATAS # : 15187.02

PROJECT : WELDON SPRING SAMPLE ID : PW-9

DATE SUBMITTED: 03-21-96 DATE EXTRACTED: 03-22-96

DATE ANALYZED : 03-27-96

METHOD REF. : SW846-8270

RESULTS REPORTED IN ug/L OR PARTS PER SILLION(PPB)

•			RESULTS			RESULTS
	<u>SENIVOLATILES</u>	<u>RL</u>	(ug/L)	SENIVOLATILE	RL	(uq/L)
	PRENOL	10	DIO CINI	3-NITROANILINE	50	ND
	BIS(2-CHLOROETHYL)ETHER	10	ND	acenaphthenb	10	ND
	2-CHLOROPHENOL	10	ND	2,4-DINITROPHENOL	50	ND
	1,3-DICHLOROBENSENE	10	ND	4-NITROPHENOL	50	MD
	1,4-Dichlorosenzene	10	ND	2,4-DINITROTOLUENE	10	ND
ı	BENZYL ALCOHOL	10	ND	DIBEN2OPURAN	10	ND
į	1,2-dichlorobenzene	10	ND	DIETHYLPHTHALATE	10	ND
	2-METHYLPHENOL	10	ND	4-CHLOROPHENYL-PHENYLETHER	10	NĎ
1	31S (2-CHLOROISOPROPYL) ETHER	10	ND	FLUORENE	10	ND
i	1-METHYLPHENOL	10	ND	4-nitroaniline	50	ND
	N-NITROSO-DI-n-PROPYLAMINE	10	ND	4,6-dinitro-2-methylphenol	50	ND
	HEXACHLOROETHANE	10	ND	N-NITROSODIPHENYLAMINE	10	ND
	11 TROBENZENE	10	ND	4-bronophenyl-phrnylether	10	ND
1	OPHORONE	10	ND	HEXACHLOROBENZENE	10	ND
1	Z, 4-DIMETHYLPHENOL	10	ND	PENTACHLOROPHENOL	50	ND
:	?-NITROPHENOL	10	ND	PHENANTHRENE	10	ND
	RENZOIC ACID	50	ND	ANTHRACENE	10	ND
	BIS (2-CHLOROETHOXY) METHANE	10	ND	DI-N-BUTYLPHTHALATE	10	ND
	2,4-DICHLOROPHENOL	10	ND	FLUORANTHENE	10	ND
	1.2.4-TRICHLOROBENZENE	10	ND	PYRENE	10	ND
	AAPHTHALENE	10	ND	BUTYLBENZYLPHTHALATE	10	ND
	4-CHLOROANILINE	10	ND	BIS(2-ETHYLHEXYL)PHTHALATE	10	ND
	MEXACHLOROBUTADIENE	10	ND	3,3-'DICHLOROBENZIDINE	20	ND
	1-CHLORO-3-METHYLPHENOL	10	MD	Benzo (a) anthracene	10	ND
	2-METHYLNAPHTHALENE	10	MD	CHRYSENE	10	ND
	"IEXACHLOROCYCLOPENTADIENE	10	ND	DI-N-OCTYLPHTHALATE	10	ND
	4.6-TRICHLOROPHENOL	10	ND	Benzo (d) Pluoranthene	10	ND
	2.4.5-TRICHLOROPHENOL	50	ND	Benzo (k) fluoranthene	10	NĐ
	2-CHLORONAPHTHALENE	10	ND	BENZO(a) PYRENE	10	ND
	:-NITROANILINE	50	מא	DIBENZO (A, H) ANTHRACENE	10	ND
	JIMETHYLPHTHALATE	10	ND	INDENO(1,2,3-CO)PYRENE	10	ND
	2,6-DINITROTOLUENE	10	ND	BENZO(G, H, I) PERYLENE	10	ND
	CENAPHTHYLENE	10	ND			
	1					

### QA/OC SURROGATE RECOVERIES

NITROBENEENE-d5(35-114)	63 %	2-FLUOROBIPHENYL(43-116)	67 %
TERPHENYL-d14(33-141)	78 %	PHENOL-d5 (10-94)	22 ₺
2-PLHOROPHENOL (21-100)	33 %	2.4.6-TRIBROMOPHENOL(10-123)	66 %

ND = NOT DETECTED ABOVE REPORTING LIMIT

L = REPORTING LIMIT

- ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

- SURROGATE RECOVERY OUTSIDE OF QC LIMITS

CLIENT: STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 15187018(247)

DATE SUBMITTED: 03-21-96

DATE : 04-09-96

SAMPLE MATRIX: WATER

ATAS # : METHOD BLANK

PROJECT : WELDON SPRING SAMPLE ID : METHOD BLANK

DATE EXTRACTED: 03-22-96

METHOD REP. : SW846-8270

DATE ANALYZED : 03-27-96

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

-		RESULTS			RESULTS
SEMIVOLATILES	<u>RL</u>	(nd/T)	SENTVOLATILE	RL	(uq/L)
PHENOL	10	ND	3-NITROANILINE	50	ND
_BIS(2-CHLOROETHYL)ETHER	10	ND	ACBNAPHTHENE	10	ND
2-CHLOROPHENOL	10	ND	2,4-DINITROPHENCL	50	ND
1,3-dicklorosenzene	10	ND	4-NITROPHENOL	50	ND
1,4-DICHLOROBENZENE	10	ND	2,4-DINITROTOLUENE	10	ND
BRENZYL ALCOHOL	10	ND	DIBENZOFURAN	10	MD
L, 2-DICRLOROSENZENE	10	ND	DIETHYLPHTHALATE	10	ND
2-METHYLPHENOL	10	ND	4-CHLOROPHENYL-PHENYLETHER	10	ND
_RIS(2-CHLOROISOPROPYL)ETHER	10	ND	PLUORENE	10	ND
I-METHYLPHENOL	10	ND	4-nitroaniling	50	ND
H-NITROSO-DI-n-PROPYLANINE	10	ND	4,6-dinitro-2-methylphenol	50	ND
HEXACHLOROETHANE	10	NTD	N-NITROSODIPHENTLAMINE	10	ND
ii troben zene	10	ND	4-Bromophenyl-prenylether	10	ND
PHORONE	10	МD	HEXACHLOROBENZENE	10	ND
2,4-DIMETHYLPHENOL	10	ND	PENTACHLOROPHENOL	50	ND
=?-NITROPHENOL	10	ND	PHENANTHRENE	10	ND
BENZOIC ACID	50	ND	ANTHRACENE	10	ND
BIS (2-CHLOROSTHOXY) METHANE	10	ND	DI-N-BUTYLPHTHALATE	10	ND
2,4-DICHLOROPHENOL	10	ND	<b>PLUGRANTHENE</b>	10	ND
.,2,4-TRICHLOROBENZENE	10	ND	PYRENE	10	ИD
JAPHTHALENE	10	ND	BUTYLSENZYLPHTHALATE	10	MD
4-CHLOROANILINE	10	ΩΝ	BIS(2-ETHYLNEXYL)PHTHALATE	10	ND
■ IEXACHLOROBUTADIENE	10	ND	3,3-'DICHLOROBENZIDINE	20	ND
:-CHLORO-3-METHYLPHENOL	10	ND	Benzo (a) anteracene	10	ND
2-METHYLNAPHTHALENE	10	ND	Chrysene	10	ND
_HEXACHLOROCYCLOPENTADIENE	10	ND	DI-N-OCTYLPHTHALATE	10	ND
,4,6-TRICHLOROPHENOL	10	ND	BENSO (b) FLUORANTHENE	10	ND
2,4,5-TRICHLOROPHENOL	50	MD	BENZO(k) FLUORANTHENE	10	ND
2-CHLORONAPHTHALENE	10	ND	BENZO(a) PYRENE	10	ND
-NITROANILINE	50	ND	DIBENZO(A, H) ANTHRACENE	10	MD
IMETHYLPHTHALATE	10	ND	INDENO(1,2,3-CD)PYRENE	10	MD
2,6-DINITROTOLUENE	10	ND	BENZO(G,H,I)PERYLENE	10	ND
CENAPHTHYLENE	10	ИD			

### QA/QC SURROGATE RECOVERIES

NITROBENZENE-d5(35-114)	62 %	2-FLUOROSIPHENYL(43-116)	61 %
TERPHENYL-d14(33-141)	106 %	PHENOL-d5(10-94)	21 🕏
2-FLUOROPHENOL (21-100)	28 %	2.4.6-TRYBROMOPHENOL(10-123)	69 🛊

ND = NOT DETECTED ABOVE REPORTING LIMIT

FL = REPORTING LIMIT

- ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

- SURROGATE RECOVERY OUTSIDE OF QC LIMITS

### LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX : WATER

REPORT DATE: 04-09-96

DATE EXTRACTED: 03-22-96 DATE ANALYZED : 03-27-96

METHOD REF. : SW846-8270, EPA METHODOLOGY

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RECOVERY

COMPOUND	LCS % REC.	LCSD % REC.	RPD_	QC RPD	ADVISORY LINITS
PHENOL	22	26	17	42	12-89
, 2-CHLOROPHENOL	41	56	31	40	27-123
L,4-DICHLOROBENZENE	44	48	9	28	36-97
N-NITROSO-DI-n-PROPYLAMINE	46	76	49*	38	41-116
1,2,4-TRICHLOROBENZENE	48	48	0	28	39-98
1-CHLORO-3-METHYLPHENOL	36	61	52*	42	23-97
ENAPHTHENE	64	62	3	31	46-118
NITROPHENOL	14	27	63*	50	10-80
, ?, 4-DINITROTOLUENE	50	76	41*	38	24-96
PENTACHLOROPHENOL	21	38	58*	50	9-103
PYRENE	86	80	7	31	26-127

STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)

DATE : 04-09-96

SAMPLE MATRIX : WATER ATAS EPISODE : #15187

DATE SUBMITTED: 03-21-96 PROJECT WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	UNITS	RADIONUCLIDE	RESULT
RMW-2	15187.01	pCi/L	GROSS ALPHA	11 +/- 8*
RMW-2	15187.01	pCi/L	GROSS BETA	13 +/-10*
RMW-2	15187.01	mg/L	TOTAL URANIUM	0.009
PW-9	15187.02	pCi/L	GROSS ALPHA	3 +/- 3*
PW-9	15187.02	pCi/L	GROSS BETA	36 +/-20*
PW-9	15187.02	mg/L	TOTAL URANIUM	<0.005

<sup>·</sup> VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.960.

pci/L= PICOCURIES PER LITER

L = PARTS PER MILLION(PPM)

CLIENT: STANLEY M. REMINGTON

REPORT: 1518701P(247)

956 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 04-09-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : 15187.01 DATE SUBMITTED: 03-21-96

DATE EXTRACTED: 03-22-96 DATE ANALYZED: 03-26-96

METHOD REF. : SW846-8080, EPA METHODOLOGY PROJECT : WELDON SPRING

: RMW-2 SAMPLE ID

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

PESTICIDES/PCB'S	REPORTING LIMIT	RESULTS
ALPHA-BHC	0.003	ND
GAMMA-BHC (LINDANE)	0.003	ND
BETA-BHC	0.006	ND
DELTA-BHC	0.009	ND
HEPTACHLOR	0.003	ND .
ALDRIN	0.004	ND ND
HEPTACHLOR EPOXIDE	0.083	ND
ENDOSULFAN I	0.014	ND
4,4-DDE	0.004	ND
DIELDRIN	0.002	ND
ENDRIN	0.006	ND
4,4-DDD	0.011	ND
PATRACTIT PANT TT	0.004	ND
4,4-DDT	0.012	ИD
ENDRIN ALDEHYDE	0.023	ИD
ENDOSULFAN SULFATE	0.066	ND
METHOXYCHLOR	0.180	ИD
CHLORDANE (TECHNICAL)	0.014	ND
TOXAPHENE	0.240	ND
AROCLOR-1016	1.00	ND
AROCLOR-1221	1.00	ИD
AROCLOR-1232	1.00	ND
AROCLOR-1242	1.00	ND
AROCLOR-1248	1.00	ИD
AROCLOR-1254	1.00	ND
AROCIOR-1260	1.00	ND
		,

### OA/OC SURROGATE RECOVERY

32 \* DECACHLOROBIPHENYL (30-150) 70 ₺ TETRACHLORO-M-XYLENE(30-150)

<sup>=</sup> NOT DETECTED ABOVE REPORTING LIMIT

<sup>=</sup> ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.

CLIENT: STANLEY M. REMINGTON REPORT: 1518701P(247)

956 BROADMOOR LANE

ST. CHARLES, NO 63301

DATE : 04-09-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : 15187.02 DATE SUBMITTED: 03-21-96

DATE EXTRACTED: 03-22-96 DATE ANALYZED : 03-26-96

METHOD REF. : SW846-8080, EPA METHODOLOGY PROJECT : WELDON SPRING SAMPLE ID : PW-9

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

PESTICIDES/PCB'S	REPORTING LIMIT	<u>results</u>
ALPHA-BHC	0.003	ND
GAMMA-BHC (LINDANE)	0.004	ND
BETA-BHC	0.006	ИD
DELTA-BHC	0.009	ND
HEPTACHLOR	0.003	ND
ALDRIN	0.004	ND
HEPTACHLOR EPOXIDE	0.083	ИD
ENDOSULFAN I	0.014	ND
4,4-DDE	0.004	ND
DIELDRIN	0.002	ND
ENDRIN	0.006	ND
4,4-DDD	0.011	ND
ENDOSULFAN II	0.004	ND
4,4-DDT	0.012	ND
ENDRIN ALDEHYDE	0.023	ND
ENDOSULFAN SULFATE	0.066	ND
METHOXYCHLOR	0.180	ND
CHLORDANE (TECHNICAL)	0.014	ND
TOXAPHENE	0.240	ND
AROCLOR-1016	1.00	ДĶ
AROCLOR-1221	1.00	ND
AROCLOR-1232	1.00	ND
AROCLOR-1242	1.00	ND
AROCLOR-1248	1.00	ND
AROCLOR-1254	1.00	ND
AROCLOR-1260	1.00	ND

### OA/OC SURROGATE RECOVERY

DECACHLOROBIPHENYL (30-150) 47 % TETRACHLORO-M-XYLENE(30-150) 73 %

NOT DETECTED ABOVE REPORTING LIMIT

ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.

CLIENT: STANLEY M. REMINGTON REPORT: 1518701P(247)

956 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 04-09-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : METHOD BLANK DATE SUBMITTED: 03-21-96 DATE EXTRACTED: 03-22-96 DATE ANALYZED : 03-26-96

METHOD REF. : SW846-8080, EPA METHODOLOGY

PROJECT : WELDON SPRING SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

PESTICIDES/PCB'8	REPORTING LIMIT	RESULTS
АГРНА-ВНС	0.003	ND
	0.004	ND
GAMMA-BHC (LINDANE)	0.006	ND
BETA-BHC DELTA-BHC	0.009	ND
	0.003	ND
HEPTACHLOR ALDRIN	0.004	ND
HEPTACHLOR EPOXIDE	0.083	ND
	0.014	ND
ENDOSULFAN I	0.004	ND
4,4-DDE DIELDRIN	0.002	ND
	0.006	ND
ENDRIN	0.011	ND
4,4-DDD ENDOSULFAN II	0.004	ND
<del>-</del> -	0.012	ND
4,4-DDT	0.023	ND
ENDRIN ALDEHYDE	0.023	ND
ENDOSULFAN SULFATE		ND
METHOXYCHLOR	0.180 0.014	ND
CHLORDANE (TECHNICAL)		ND
TOXAPHENE	0.240	ND
AROCLOR-1016	1.00	ND
AROCLOR-1221	1.00	ИD
AROCLOR-1232	1.00	
AROCLOR-1242	1.00	ND ND
AROCLOR-1248	1.00	
AROCLOR-1254	1.00	NĐ
AROCLOR-1260	1.00	ND

### QA/QC SURROGATE RECOVERY

53 ₺ DECACHLOROBIPHENYL (30-150) 70 % TETRACHLORO-M-XYLENE (30-150)

NOT DETECTED ABOVE REPORTING LIMIT

<sup>-</sup> ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.

### ABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX : WATER REPORT DATE: 04-09-96

DATE EXTRACTED: 03-22-96 DATE ANALYZED : 03-26-96

METHOD REF. : SW846-8080, EPA METHODOLOGY

### LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE RECOVERY

COMPOUND	LCS PERCENT RECOVERY	LCS DUP. PERCENT RECOVERY	RELATIVE PERCENT DIFFERENCE
<b>GAMMA-</b> ВНС	54 %	62 %	14 %
HEPTACLOR	53 %	64 %	19 %
ALDRIN	52 \$	65 <b>%</b>	22 %
DIELDRIN	51 %	60 %	16 %
DRIN	59 %	70 %	17 %
4,4-DDT	5 <b>2</b> %	65 %	22 %

STANLEY M. REMINGTON

REPORT: 151871EX(247)

956 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 04-09-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER ATAS # : 15187.01 DATE SUBMITTED: 03-21-96 DATE ANALYZED: 03-27-96

METHOD REF. : SW846-8330, EPA METHODOLOGY PROJECT : WELDON SPRING SAMPLE ID : RMW-2

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

	QUANTITATION	RESULTS
EXPLOSIVE	<u>Likit</u>	V POODI 9
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	NĐ
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ИÐ
2,4 DNT	5.7	מא
2,4,6 TNT	6.4	ИD
O-NITROTOLUENE	12.0	MD
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ÞΩ

LIENT:

STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301 ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)

DATE : 04-09-96

SAMPLE MATRIX : WATER ATAS # : 15187.02 DATE SUBMITTED: 03-21-96

DATE ANALYZED: 03-27-96

METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-9

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

QUANTITATION LIMIT	RESULTS
<del></del>	
13.0	ND
14.0	ИD
7.3	ND
10.0	ND
4.0	ND
7.0	ИD
9.4	ND
5.7	ND
6.4	ND
12.0	ND
8.0	ЙĎ
7.9	ИD
	LIMIT  13.0 14.0 7.3 10.0 4.0 7.0 9.4 5.7 6.4 12.0 8.0

CLIENT: STANLEY M. REMINGTON REPORT: 151871EX(247)

956 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 04-09-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS 🗲 : METHOD BLANK DATE SUBMITTED: 03-21-96

DATE ANALYZED : 03-27-96

METHOD REF. : SW846-8330, EPA METHODOLOGY PROJECT : WELDON SPRING SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

### ODANTITATION

	QUANTITATION	
EXPLOSIVE	LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ИD
1,3-DNB -	4.0	ND
NITROBENZENE	7.0	ИD
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
O-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

LIENT: STANLEY M. REMINGTON

**REPORT:** 151871EX(247)

956 BROADMOOR LANE

DATE : 04-09-96

ST. CHARLES, MO 63301 ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : LABORATORY CONTROL SAMPLE

DATE SUBMITTED: 03-21-96

DATE ANALYZED: 03-27-96
METHOD REF.: SW846-8330, EPA METHODOLOGY
PROJECT: WELDON SPRING
SAMPLE ID: LABORATORY CONTROL SAMPLE

COMPOUND	PERCENT RECOVERY	
нмх	114 %	
RDX	115 %	
1 1,3,5-TNB	113 %	
TRYL	73 %	
3-DNB	131 %	
TNT	101 %	
NITROBENZENE	105 %	
2.6 DNT	107 %	
2,4 DNT	105 %	
O-NITROTOLUENE	111 %	
p-NITROTOLUENE	106 %	
m-NITROTOLUENE	107 %	

CLIENT:

STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)

DATE : 04-09-96

SAMPLE MATRIX : WATER

: 15187.01

ATAS # DATE SUBMITTED: 03-21-96

PROJECT : WELDON SPRING

SAMPLE ID : RMW-2

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REPERENCE
		IN	organics		
INORGANIC CHLORIDE	0.2	mg/L	6.1	03-22-96	EPA 300.0
FLUORIDE	0.2	mg/L	ND	03-22-96	EPA 300.0
NITRATE	0.2	mg/L	ND	03-22-96	EPA 300.0
SULFATE	0.2	mg/L	8.7	03-22-96	EPA 300.0
		1	METALS		
ARSENIC	0.005	mg/L	0.120	04-01-96	SW 6010
BARIUM	0.001	mg/L	0.373	04-01-96	SW 6010
CADMIUM	0.001	mg/L	ND	04-01-96	SW 6010
LEAD	0.003	mg/L	0.005	04-01-96	SW 6010
MERCURY	0.0001	mg/L	0.0001	03-27-96	SW 7470

CLIENT: STANLEY M. REMINGTON

REPORT: 151871EX(247)

956 BROADMOOR LANE

DATE : 04-09-96

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS 🗲 DATE SUBMITTED: 03-21-96

: 15187.02

PROJECT : WELDON SPRING SAMPLE ID : PW-9

REPORTING LINIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE			
	IN	organics					
0.2	mq/L	3.2	03-22-96	EPA 300.0			
0.2		0.2	03-22-96	EPA 300.0			
0.2		ND	03-22-96	EPA 300.0			
0.2	mg/L	39.8	03-22-96	EPA 300.0			
		METALS					
0.005	mg/L	ND	04-01-96	SW 6010			
0.001		0.420	04-01-96	SW 6010			
		ND	04-01-96	SW 6010			
		ND	04-01-96	SW 6010			
			03-27-96	SW 7470			
	0.2 0.2 0.2 0.2 0.2	LIMIT UNITS  IN  0.2 mg/L  0.2 mg/L  0.2 mg/L  0.2 mg/L  0.01 mg/L  0.001 mg/L  0.001 mg/L  0.003 mg/L	INORGANICS  INORGANICS  O.2 mg/L 3.2 O.2 mg/L 0.2 O.2 mg/L ND O.2 mg/L ND O.2 mg/L 39.8  METALS  O.005 mg/L ND O.001 mg/L 0.420 O.001 mg/L ND O.003 mg/L ND O.003 mg/L ND	INORGANICS  INORGANICS  O.2 mg/L 3.2 O3-22-96 O.2 mg/L 0.2 O3-22-96 O.2 mg/L ND O3-22-96 O.2 mg/L ND O3-22-96 O.2 mg/L ND O3-22-96 O.2 mg/L 39.8 O3-22-96  METALS  O.005 mg/L ND O4-01-96 O.001 mg/L 0.420 O4-01-96 O.001 mg/L ND O4-01-96 O.003 mg/L ND O4-01-96			

CLIENT: STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)

DATE : 04-09-96

### QA/QC

DESCRIPTION		PARAMETER	results
METHOD BLANK	04-01-96	ARSENIC	<0.005 mg/L
METHOD BLANK	04-01-96	BARIUM	<0.001 mg/L
METHOD BLANK	04-01-96	CADMIUM	<0.001 mg/L
METHOD BLANK	04-01-96	LEAD	<0.003 mg/L
METHOD BLANK	03-25-96	MERCURY	<0.0001 mg/L
METHOD BLANK	03-26-96	FLUORIDE	<0.2 mg/L
METHOD BLANK	03-26-96	CHLORIDE	<0.2 mg/L
METHOD BLANK	03-26-96	NITRATE	<0.2 mg/L
METHOD BLANK	03-26-96	SULFATE	<0.2 mg/L
CONTROL SPIKE	04-01-96	ARSENIC	98 % RECOVERY
CONTROL SPIKE	04-01-96	BARIUM	94 % RECOVERY
CONTROL SPIKE	04-01-96	CADMIUM	95 % RECOVERY
CONTROL SPIKE	04-01-96	I.EAD	94 % RECOVERY
CONTROL SPIKE	03-25-96	MERCURY	98 % RECOVERY
CONTROL SPIKE	03-26-96	FLUORIDE	105 % RECOVERY
CONTROL SPIKE	03-26-96	CHLORIDE	105 % RECOVERY
CONTROL SPIKE	03-26-96	NITRATE	102 % RECOVERY
CONTROL SPIKE	03-26-96	SULFATE	104 % RECOVERY



# AMERICAN TECHNICAL & ANALYTICAL SERVICES, Inc. 875 Feb Frank Frank Happing, MD 65043-3211 - Office (314) 434-4570 - FAX (314) 434-0550



CHAIN OF CUSTODY RECORD

Preservative Lab Use			Remarks 41.56-10432								1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Tumeround Requirements	1 to 2 working days	3 working days	5 working days	10 working days	15 working days Preservative codes	A - none	6 - HNO3 C - H2SO4	HOBO - C	
XX	The state of the s		10 10 10 10 10 10 10 10 10 10 10 10 10 1	\ \ \	<u> </u>	×							Received by:									
	, \		$\langle \mathbf{A} \rangle$	X X	×		 			-			Rece		Signature		Printed Name	Firm		Date/Time		
Type of Analysis XO.	10	247	_	х Х	×××								Relinquished by:	•								
H	istno	<u>-</u>	ON	×	メ	×							Relingo		Signature		Printed Name	Firm		Date/Time		SCopy to Client
		# Od	Sample & B	×	7								(M) pa	7	S	ENTERC		<u> </u>				Original to ATAS/Copy to Cilent
Vame STAN REMINISTON	Project #	<u>ā</u>	Sample S Time	0009	0500								A Received	The same of the sa	Signature		Printed Name	E .	324-96 1050	Date/Time	& Company) :	
AN POST	Spaint	<b>.</b>	Sample Date	321/12	3/21/96	ıι						_	d by	STATE TO	7	かんして	المراز	\$	0501		SEND RESULTS TO (Name & Company) :	
ATAS Client Name	Project Name	Form Completed By	Sample ID	RMW-2	Pw-9	TREAT, PLANT							A @ Reimoulshed b	State	Signature	STAS KERINGTES	Printed Name S.C. COUNTY	1	13/12/8	DateTime	SEND RES	



County Engineer - Water Dept.

St. Charles County

April 3, 1996

Mr. Stanley Remington

956 Broadmoor Lane

St. Charles, Mo. 63301-6201

RE: St. Charles County Well Field

Dear Stan:

Enclosed please find a letter dated April 1, 1996 with regard to an exceedence for PW03. Please review this letter and offer your opinion regarding this exceedence. Since we were pumping from a number of wells at that time please review the incoming raw water to see if there was an elevated gross beta level which would indicate there was an actual exceedence and not just a false lab test.

I would also like for you to pay particular attention to this well in your future testing procedures just to make sure that an exceedence is not a recurring phenomena.

Please advise me on this matter.

Sincerely,

Joe R. Nichols County Engineer

JRN/cia Enclosure

cc: Mr.

Mr. Tom Engle, Director of Administration

Mr. Tom Aaron

o:\hiway\water\pw03





### Department of Energy

Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

April 1, 1996

Mr. Joe Nichols St. Charles County Engineer 201 N. Second Street Suite 249 St. Charles, Missouri 63301

Dear Mr. Nichols:

### VERBAL INQUIRY REGARDING DATA PRESENTED IN THE QUARTERLY ENVIRONMENTAL DATA SUMMARY (QEDS) FOR FOURTH QUARTER 1995

In response to your recent inquiry regarding GW-PW03-Q395 and GW-RAWW-Q495 data presented in the QEDS, I have presented below the facts surrounding the data anomalies.

In November, 1995 an elevated value of gross beta was recognized in a groundwater sample from the St. Charles County Public Water Supply pumping well PW03, collected on September 28, 1995. The gross beta value for this sample was 130 pCi/l. Normal range for this location gross beta is between 4 and 10 pCi/l. The analysis was validated by the ES&H VVG and re-analysis of the sample was requested. Re-analysis also indicated that the sample exceeded normal range.

A thorough review of historical data for the PW03 location, data for St. Charles County Water Treatment Plant influent (09/28/95 raw water from the pumping wells), and historical and recent data from pumping wells and monitoring wells hydraulically upgradient and crossgradient of the PW03 location was conducted. The following conclusions were drawn from the data review:

 No radiological parameters or isotopes associated with WSSRAP (uranium, radium, thorium) were elevated above normal range for the 09/28/95 pumping well PW03 sample. If the elevated beta value is valid, it is possible that other naturally occurring beta-emitting isotopes (such as Potassium-40) are contributors.

- 2. No elevated gross beta or other radiological parameter was elevated above normal range in upgradient or crossgradient pumping wells or monitoring wells. Any WSSRAP-source radiological contaminants of concern would have been detected hydraulically downgradient from the Quarry in the monitoring wells in the vicinity of the Femme Osage Slough, the RMW wells in the well field, and other pumping wells upgradient from PWO3.
- Analytical results of the County Water Treatment Plant influent originating from the pumping wells indicated the gross beta activity and other radiological parameters were within the normal range for 09/28/95.

It was concluded that the elevated gross beta value was most likely artificial. It is possible that contamination of the sample occurred during sample collection or at the analytical laboratory. However, samples collected on the same day before and after the PW03 location did not show any elevated gross beta values. The location was resampled in December, 1995 and the gross beta value was 5.4 pCi/l, within normal range.

Regarding the elevated gross beta for GW-RAWW-Q395, this value is suspected to be a laboratory error because all pumping wells that contribute to the influent were within their normal ranges of between 5 pCi/l to 10 pCi/l. Reanalysis of this sample yielded a gross beta concentration of 5.8 pCi/l.

If there are questions, please call me or Tom Pauling at (314)441-8978.

Sincerely,

Jerry S. Van Fossen Deputy Project Manager

Jety & Van Forsen

Weldon Spring Site

Remedial Action Project

cc: James R. Powers, PMC



### Department of Energy

Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

April 11, 1996

### Distribution:

QUARTERLY SITE AND QUARRY WATER TREATMENT PLANT EFFLUENT DATA SUMMARY - FIRST QUARTER 1996

Enclosed please find the subject effluent data summary sheets for the batches of water treated and discharged during the first quarter of 1996. Six batches (S#072 through S#077) and two batches (Q#042 through Q#043) have been treated and discharged from the site and quarry water treatment plants, respectively.

If you have any questions, please call me or Bruce Ballew at (314)441-8978.

Sincerely,

Jerry S. Van Fossen Deputy Project Manager

Jetyst. Van Fossen

Weldon Spring Site

Remedial Action Project

Enclosure: As stated

cc w/o enclosure:

Martha Windsor/Geri Kountzman, MDNR

### Distribution List

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City of St. Louis Water Division
Chain of Rocks Plant
10450 Riverview Drive
St. Louis, Missouri 63137

# SUMMARY OF SWTP (BATCH 072) ANALYTICAL RESULTS From all parties receiving samples on 1/2/96

01/05/96 1600

					1 8T. CHARLES	SIL LOUIS
	NPDES LIMITS	PMC DATA	MoDNR DATA	EPA DATA	COUNTY	COUNTY H & W
DADAMETER	fmorth Unitess noted		RESULTS	RESULTS	DATA RESULTS	DATA RESULTS
WIE 16.1	09/08			AN	VIA N	¥
	3 5			AN	N.	¥
		*		٧×	NA	
ANGENIC	5	CO DOS MOJ		N.	ΑA	
WORLD CAN	10	<0.001 mg/l		NA	¥	
114NOANICOE	0.1	√0,006 mg/l		¥	¥	
WANGE OF	P000	<0.00010 mail		¥N	ž	
	0.02	0.0122 mg/l		NA	ž	
CVANIDE ALTENABLE	0.0075	<0.005 mg/l		A.	¥	
24-DNT	0.22 uo/	<0.01 ug/l		≨	Ϋ́	
	4.0	2.92 mg/l		ΑN	*	
FLOOPING AS N	30	3.24 mo/l		NA.	¥	
SHIPPIE T MINIE AS IN	805	205 mg/k		ž	AN.	
2000 in C	#	207 mg/l		NA	≨	
COLUMN I BUA	•	2.17 ±3.02 DCM		ž	¥	
C. 100 CO. C.	•	29.2 ±3.66 DCM		¥X	¥	
LINCOLUMN TOTAL	=	0.249 ±0.003 pCM		NA	ž	
CACHIBA 226 ***	*	Due 1-10-96		¥	ž	
	*	Due 1-10-96		¥	¥	
T-2001114-020 ***	*	Due 1-10-96		¥	¥	AN.
	*	Due 1-10-86		XX.	¥	NA
7 (84 Hote)	G ( P	99'0		¥	<b>₹</b>	
PRIORITY POLLUTANTS	(SEE BELOW)					414
1. SEMI-VOA	•	≨		ž	≨ 3	444
2 VOA	*	ž		Į.	ž	٤
3 PCBs/PESTICIDES	****	<1 ug/		ž	Y.	
4 METAL BYOTHERS	•	ΨN				
* = Monttoring Parameter						
** = Design Value of 30 pCl/f; Not to Exceed 100 pCl/	1/1; Not to Exceed 1	90 pCi/I				
*** # Monitoring parameter once per month		Sampled in batch S072.				
**** = Effective limit of 1 µg/l		.				
NA - NOT ANALYZED	4	The state of the s				
	E Deta received site	DRICH WAS USCHOOL				

## SUMMARY OF SWTP (BATCH 073) ANALYTICAL RESULTS From all parties receiving samples on 1/9/96

01/16/96 1450

					ST. CHARLES	ST. LOUIS
	NPDES LIMITS	PMC DATA	MoDNE DATA	EPA DATA	COUNTY	COUNTY H & W
PARAMETER		RESULTS	RESULT8	REBULTS	DATA RESULTS	DATA RESULTS
000	09/06	15.00 mg/l		¥	NA	AN
188	06/05	2.00 mg/l		NA	NA	NA NA
ARSENIC	0.1	<0.0046 mg/l		NA NA	ž	
CHROMIUM	0.1	<0.0044 mg/l		¥	¥	
EAD	0.1	<0.0017 mg/l		¥.	NA	
MANGANESE	0.1	0.0039 mg/l		ΝA	NA	
MERCURY	0.004	<0.00010 mg/l		ΝΆ	¥	
SELENIUM	0.02	<0.0043 mg/f		ž	ž	
CYANIDE, AMENABLE	0.0075	//Bш <u>500</u> ′0>		≱	¥	
2.4-DNT	0.22 ucyl	10.0>		NA	¥	
FLIORIDE	0.4	2.12 mg/l		N.A	AN	
NITRATE + NITRITE AS N	20	3.79 mg/l		¥.	AA	
SINEATE	200	279 mg/l		۷V	¥	
CHIORIDE	*	204 mg/l		VN	. AA	
GROSS ALPHA	•	5.08 ± 2.57 pCi/l		ΨN	¥¥	1.1 ±0.8 pCM
GROSS BETA	*	12,8 ± 3.83 pCl/		¥	¥	8.7 ±1.1 pCl/l
URANIUM. TOTAL	+	0.447 ± 0.005 pCVI		ΥN	¥	
RADIUM-226 ***	•	NA.		¥	NA NA	
RADIUM-228 ***	•	N.A.		N.A	AN N	
THORIUM-230 ***	•	N.A.		≨	¥Z.	¥
THORIUM-232 ***	*	N.A.		≨	ž	¥
off (9td. Units)	9	7.47		≨	¥	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI - VOA	•	¥		≨	≨	YY.
2. VOA		¥		ž	ž	ΥN
3. PCBs/PESTICIDES	a/sees	<1 ug/N.A.		¥	¥	AA
4. METALSKOTHERS	*	NA				
* = Monitoring Parameter						
** = Design Value of 30 pCl / I; Not to Exceed 100 pCl /	3/1; Not to Exceed 10	N PCi/I				
*** - Monitoring paremeter once per month.		Sampled ON 1/2/96 in batch S072	8072.			
**** = Effective limit of 1 µg/l						
Carrie Tour						
NA = NOI ANALIZZO	M - Date received after	wad after batch was discharged				
مستحد بدرائي المراثل المتعدد والمتعدد والمتعد والمتعدد والمتعدد والمتعدد والمتعدد والمتعدد والمتعدد والمتعد والمتد والمتعدد والمتعدد والمتعدد والمتعدد والمتعدد والمتعدد والمت						

# SUMMARY OF SWTP (BATCH 074) ANALYTICAL RESULTS From all parties receiving samples on 2/1/96

02/13/96 1430

					ST. CHARLES	SI. TONIS
	NPDES LIMITS	PMC DATA	MODNE DATA	EPA DATA	COUNTY	COUNTY H & W
PARAMETER	(may)) Unless noted		RESULTS	RESULTS	DATA RESULTS	DATA RESULTS
	08/06	5.00 mg/l		NA	NA	ΑĀ
	86/09	]		NA	*	A.
ENIC	0.1	*		NA	ΝA	
CHROMIUM	0.1	<0.0035 mg/l		NA	NA.	
(EAD	0.1	<0.0017 mg/l		NA	NA	
MANGANESE	1.0	0.0026 mg/l		NA	₹2	
MERCURY	0,004	<0.0001 mg/l		ž	¥	
SELENION	0.02	<0.0045 mg/l		₹	¥	
CYANIDE AMENABLE	0.0075	<0.005 mg/l		¥	¥	
2.4-DNT	0.22 ug/i	100 to		٧¥	¥	
FLUORIDE	4.0	2.63 mg/l		¥	¥	
NITRATE + NITRITE AS N	ន	1.32 mg/l		¥	≨	
Sturate	200	Ngm 305		ΨN	ΑΝ	
CHLORIDE	+	208 mg/l		¥N	ž	
GROSS ALPHA	*	3,40 ±0.60 pCi/i		¥	ž	1.2 ±1.0 pCi/l
GROSS BETA	•	9.30 ±1.50 pC/I		₩	ΑA	8,0 ±1,1 pCi/l
URANIUM. TOTAL		0.800 ±0.0260 pCV		ž	¥	
RADIUM-226 ***	•	0,645 ±0.887 pC//		Ϋ́	NA	
RADIUM-228 ***	*	3.02 ±2.27 pCM		¥	¥	
THORIUM-230 ***	*	0,855 ±0.363 pCV		≨	¥	¥
THORUM-232 ***		<0.138 pC//		¥	ž	Ϋ́
oth (Std Units)	8-9	7.04		≨	¥	
PRIORITY POLIUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	¥Ζ		≨	≨:	¥.
2. VOA		¥		ž	≨:	AN.
3. PCBs/PESTICIDES	4/4444	<1.0 ug/l / NA		≨	AN .	V.
4. METALS/OTHERS	•	W				
* - Monitoring Parameter						
** = Design Value of 30 pCi / I; Not to	Exceed	100 pCi/I				
*** = Monitoring parameter once per month	ce per month.					
**** = Effective limit of 1 400						
NA = NOT ANALYZED						
second and a part of the second and	= Data received after	wed after betch was discharged				

# SUMMARY OF SWTP (BATCH 075) ANALYTICAL RESULTS From all parties receiving samples on 2/21/96

04/11/96 0920

					8T, CHARLES	ST. LOUIS
<u>-</u>	NPDES LIMITS	PMC DATA	Modnh Data	EPA DATA	COUNTY	COUNTY H& W
PARAMETER	(mg/l) Unless noted	RESULTS	RESULTS	REBULTS	DATA RESULTS	DATA RESULTS
COD	09/06	5.0 mg/l		¥	¥	NA
TSS	50/30	3.0 mg/l		¥	ΝA	Ā
ABSENIC	0.1	<0.0046 mg/l		¥	¥	
CHBOMILIM	0.1	<0.0031 mg/		¥	NA	-
LEAD	0.1	<0.0017 mg/l		¥	¥.	
MANGANESE	0.1	0,0030 mg/l		ΝA	AA.	
MERCURY	2000	<0.00010mg/l		ΝA	ΑÑ	
SELENIUM	0.02	<0.0045 mg/l		≨	¥	
CYANIDE AMENABLE	0.0075	<0.005 mg/l		¥	¥	
12.4-DNT	0.22 vol	<0.01 ug/i		₹	₹	
FLIORIDE	4.0	2.85 mg/l		¥	ΑN	
NITRATE + NITRITE AS N	8	1.14 mg/l		ž	NA A	
SUI FATE	909	%Bm 662		¥	ž	
CHORDE	#	216 mg/l		¥	¥	
GROSS AL PHA	•	14.4 ± 4.08 pCi/l		¥	¥	2.3 ± 1.2 pC/I
GROSS SETA		31.5 ± 4.90 pC//		¥	¥	9.7 ± 1.1 pCi/
URANIUM TOTAL	**	2.22 ± 0.0623 pC//		Ş	≨	¥
RADIUM-226 ***	•	¥		≨	<b>≨</b>	
BADIUM-226 ***	•	AN		¥	₹	
THORIUM-230 ***		ΨN		₹	ΑN	≱
THORUSM -232 ***	•	¥		ž	¥	Y.
OH (Std. Units)	8-8	7.08		¥	≨	
PPICHTY POLLUTANTS	(BEE BELOW)		-			
1. SEMI-VOA	*	¥		¥.	2	S N
2. VOA	*	¥.		Š	YY.	5
9. PCBe/PESTICIDES	****	<1.0 ug//NA		¥Z	£	47
4, METALSYOTHERS	*	₹				
* = Monitoring Parameter						
** = Design Value of 30 pCI / I; Not to		80 pQi/1				
*** - Monitoring parameter once per month	ce per month. Monitor	Monitored for February in batch 8074.	ch 8074.			
**** = Effective limit of 1 µg/f						
NA = NOT ANALYZED	The second section	Anthur age discharge				
	E Data (econed aliza	INGO BILIBI DEICH WAS UBSCHULGE				

## SUMMARY OF SWTP (BATCH 076) ANALYTICAL RESULTS From all parties receiving semples on 3/11/96

03/20/96 1130

					ST. CHARLES	ST. LOUIS
	NPDES LIMITS	PMC DATA	Modne Data	EPA DATA	COUNTY	COUNTY H & W
PARAMETER	(mg/l) Unless noted	RESULTS	RESULTS	REGULTS	DATA REBULTS	DATA
000	09 / 06	<20.0 mg/l		¥	¥.	¥
139	50/30	<12 mg/l		¥	NA	¥
ARSENIC	0,1	/gm 500.0>		٧V	NA	
CHROMIUM	0.1	0.0015 mg/		٧N	NA	
LEAD	0.1	<0.0020 mg/l		ΨN	NA	
MANGANESE	0,1	0,0015 mg/f		NA NA	NA	
MERCURY	0.004	<0.00020 mg/l		NA N	NA	
SELENIUM	0.02	<0.003 mg/l		NA	NA	
CYANIDE, AMENABLE	0,0075	√0.005 mg/l		AN	A/A	
2.4-DNT	0.22 ug/l	l/60 0€.0>		NA.	NA.	
FLUORIDE	4.0	2.3 mg/l		NA.	NA	
NITIATE + SITE TE AS N	82	0,39 mg/l		¥	NA	
SULFATE	200	250 mg/š		≨	¥N.	
CHLORIDE	*	190 mg/l		¥	NA	
GROSS ALPHA	+	0.6 ± 4.8 pCVI		ΑN	¥	2.7 ± 1.3 pCi/l
GPOSS BETA	*	13.2 ± 4.1 pCŲ		₩	₹	10.3 ± 1.1 pCl/l
URANIUM, TOTAL	;	0.533 ± 0.028 pCi/i		NA	¥Z.	₹
RADIUM-226 ***	*	0.08 ± 0.25 pC//		٨N	A A	
RADIUM-228 ***	*	0.96 ± 0.50 pCV		XX.	AN	:
THORSUM-290 ***	*	0,015 ± 0,055 pCV		*	NA	AN
THORIUM-232 ***	*	0.01 ± 0.030 pC//		ž	¥N	Ā
DH (Std. Units)	0 = 0	6.55		≨	¥	
PRICHITY POLILITANTS	(SEE BELOW)					:
1. SEMI-VOA	*	≱		≨	¥.	NA
2. VOA	•	NA		₹	¥	¥
3. PCBa/PESTICIDES	****	<0.80 ug/l / NA		Ϋ́	¥	Ϋ́
4. METAL SYOTHERS		NA				
* - Monitoring Parameter						
** - Design Value of 30 pCI/I; Not to E	peed	100 pCl/i				
*** = Monitoring peremeter on	toe per month.					
**** = Effective firms of 1 usrl						
NA = NOT ANALYZED						
SESSECTION CONTRACTOR CONTRACTOR IN THE PROPERTY IN THE PROPER	# = Data received Biter	ed Biter Datch Was discrimined				

## SUMMARY OF SWTP (BATCH 077) ANALYTICAL RESULTS From all parties receiving samples on 3/26/96

04/04/98 1130

					8T. CHARLES	ST. LOUIS
	NPDES LIMITS	PIMC DATA	Modnr DATA	EPA DATA	COUNTY	COUNTY H & W
PARAMETER	(mg/l) Unless noted	RESULTS	RESULTS	RESULTS	DATA BESULTS	DATA RESULTS
<del>QO</del> O	T 90/60	11.2 തള്യി		AN.	NA	≱
188	20/30	6.4 mg/l		WW	NA	NA
ARSENIC	0.1	<0.00090mg/l		YN	NA	
CHROMIUM	0.1	0.003 mg/i		NA	¥¥	
OVEN	0.1	0,0013 mg/l		NA	≨	
MANGANESE	0.1	0.0037 mg/l		NA A	Ϋ́	
MERCURY	0.004	<0.00010 mg/l		٧N	ΝA	
SELENIUM	0.02	0.0019 mg/l		XX.	ΥN	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		N.A.	AN	
2,4-DNT	0.22 ug/t	<0.20 ug/l		NA .	NA NA	
FLUORIDE	4.0	3.0 mg/l		W	¥	
NITRATE + NITRITE AS N	æ	1.6 mg/l		NA	NA NA	
SULFATE	200	234 mg/l		NA.	NA	
CHLORIDE	*	I/Bm 602		¥	NA.	
GROSS ALPHA	•	7.05 ± 7.97 pCW		¥	NA	2.7 ± 1.2 pCM
GROSS BETA	4	32.1 ± 10.8 pC//		NA	NA	8.9 ± 1.1 pCi/l
URAMIUM, TOTAL	4.9	0.672 ± 0.015 pC/II		¥	¥	NA
RADIUM-226 ***		DUE 4/5 pCt/l		AA	¥	
PADIUM-228 ***	#	uhod s/r and		ΥN	Ν¥	
THORIUM-230 ***		DUE 4/5 pCVI		¥¥	NA A	NA
THORIUM - 292 ***	#	DUE 4/5 pCVI		WA	NA	Υ¥
pH (Std. Units)	6-9	77.7		WA	¥	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI - VOA	*	WA		¥	₹	AA A
2. VOA		NA W		¥	≨	NA
3. PCBs/PESTICIDES	4/40*4	<1,00 ug// NA		¥	₹	Ā
4. METALS/OTHERS		NA				
* = Monkoring Paremeter						
** = Design Value of 30 pCl / I; Not to E	peeg	100 pCi/l				
*** = Montoring parameter once per month.	rce per month.					
**** = Effective limit of 1 µg/l						
•		4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -				
SECTION OF THE PROPERTY OF DATE FORDING	# = Data received effer (	red ener parch was discharged				

SUMMARY OF QWTP (BATCH 042) ANALYTICAL RESULTS FROM ALL AGENCIES RECEIVING SAMPLES ON 12/12/95

12/28/95 0900

					1 ST. CHARLES	8T, 10UIS
		1210	ATAN DIAGON	FPA DATA	COUNTY	COUNTY H & W
•	NPDES LIMITS	PMC DATA	RESULTS	REBULTS	DATA BESULTS	DATA RESULTS
PARAMETER		17.0000		NA	¥	¥.
000	09/06	17.50 tingfil		2	¥	NA
158	20/30	CS.UUmgr		ž	4×	
ARSENIC	0.1	(gmc100.0>		¥	≨	
CHROMIUM	0.1	<0.0096 mg/l		AN	¥	
COPPER ***	-	<0.0047 mg/l	!	42	¥	
FAD	0.1	<0.00070 mg/l		2 3	2	
TOTAL	0.1	0.0125 mg/l		٤	NA NA	
MANAGERICAL INC.	2000	1/gm 100001 ×		≨ :	£ 3	
MERCORY	0.00	0,0022 mg/l		ž	¥ :	
MO THE PARTY OF TH	0.0075	<0.005 mg/l		≨	¥	
CYANIDE, AMENABLE	Post Co. C	0.195 ual		ž	¥.	-
2,4~DN1	0,42 UWI	0.14 mod		ž	₹	-
FLUORIDE	D.4	201000		≨	¥	
NITRATE+NITRITE AS N	*	AUTONIO MINI		12	¥	
SULFATE	200	439 mg/l		42	¥	<u> </u>
CHLORIDE	*	369 mg/l		¥2	ž	4.9 ± 1.6 pCi/l
GROSS ALPHA	•	0.60 ± 0.40 pC/M			¥Z	7.9 ± 1.1 pC(f)
GEOSS RETA	<b>*</b>	0.80 ± 0.80 pC//		٤	***	1.9 ± 0.3 pCM
I DAMINI TOTAL	;	1,34 ± 0,019 DCM		ž	§ 3	AZ .
26.51 MJ - 954 ***	•	0,404 ± 0.27 pC/II		<b>≨</b>  :	<u> </u>	AN.
Carrier one att	•	0,10 ± 1,20 pC(/i		٤		Ą
HADIUM - 220	-	0 106 ± 0.232 pC(//	1	£	<u>ا</u>	
THORIUM -230	,	000 + 000 BCM		ž	≨	٤
THORIUM-232 """	OWO IDO DOO!					
PRICHTY POLLUTANIS	COCC DEPOSE	MAN I	¥	NA NA	٤	<b>\</b>
1. SEMI-VOA		NAN		ž	ž	<b>§</b>
2. VOA	.			≨	ž	<b>₹</b>
a. PCBs	•				¥	
4. PESTICIDES	•	<b>5</b>			<b>≱</b>	
6. METALS / OTHERS	•	¥.	42		<b>₹</b>	≨
Ha	6.0 - 9.0 S.U.	6.02 6.01	<u> </u>			
* = MONITORING ONLY, NO PERMIT OF	3					
** = Design Value of 30 pCi / I; No	<u>و</u> ر	Exceed 100 pci/i				
*** = Parameter required oncermonth.		Sampled the parch.				
NA = Not analyzed.						
THE PROPERTY OF THE PROPERTY O	= Deta received	Affer DOICH WAS USED IN	100			
ACOCCAPATION SOCIETY						

# SUMMARY OF QWTP (BATCH 043) ANALYTICAL RESULTS FROM ALL AGENCIES RECEIVING SAMPLES ON 2/28/28

3/15/96 1030

			_		ST. CHARLES	SI. LOOKS
	NPDES LIMITS	PMC DATA	Modney DATA	EPA DATA		COUNTY H & W
PARAMETER	(man)	HEBULT8	HESULTS	RESULTS	L DATA BESULTS	DATA
000	09/08	<20 mg/l		¥	¥X	NA.
158	90/30	<12 mg/l		NA	N.A	NA
ARSENIC	3.0	<0.002 mg/l		NA NA	NA	
CHROMIUM	0.1	<0.002 mg/l		NA	MA	
COPPER ***	-	0.0018 mg/l		ΝA	ΝA	
LEAD	0.1	<0,0010 mg/l		≱	NA.	
MANGANESE	0.1	0.0255 mg/l		NA NA	¥	
MERCURY	500.0	<0.00020 mg/t		NA	NA	
SELENIUM	0.02	1/bm 0600.0>		NA	AN	
CYANIDE AMENABLE	0.0075	^0.005 mg/l		NA NA	NA.	
2.4-DNT	0,22 uq/l	<0.20 ug/l		¥	≨	
FLUORIDE	4.0	0.18 mg/l		ΑN	¥	
NITRATE+NITRITE AS N	•	<0.1 mg/l		¥	¥	
SUUFATE	88	270 mg/l		¥	NA	
CHLOROE	*	390 mg/l		¥	¥	
GROSS ALPHA	•	4.7 ± 7.0 pCl/l		NA	¥N.	1.5 ± 1.1 pC//
GROSS BETA	*	6.9 ± 4.0 pCM		¥	¥	8.9 ± 1.1 pCi/l
URANIUM, TOTAL	**	1.385 ± 0.072 pC//		NA	NA	# pcM
PADIUM-226 ***	•	0.38 ± 0.20 pCM		¥X	NA	AN .
RADIUM-228 ***	•	-0.40 ± 0.46 pCM		VΝ	¥	NA
THORIUM-230 ***	•	0.01 ± 0.065 pCi/l		¥X	¥	NA
THORIUM-232 ***	*	-0,020 ± 0,039 pCi/l		¥Ν	ž	AN
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA	NA	¥	≨	Ϋ́
2. VOA	•	ΥN		ΥN	≨	¥
3. PCBs	•	l/br/ 08:0>		₹2	≨	Ϋ́
4, PESTICIDES	•	NA.			₹	
5. METALS / OTHERS	•	Ž			≨	
듄	6.0 - 9.0 S.U.	7.91	NA NA	<b>≨</b>	≨	¥
* = MONITORING ONLY, NO PERMIT DISCHARGE LIMITS	NO PERMIT DISCHAF	1GE LIMITS				
** = Design Value of 30 pCi / I; Not	30 pCi/l; Not to E	to Exceed 100 pCl/1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		# C C C C C C C C C C C C C C C C C C C	hallamen cooks
*** = Parameter required once/month. Sampled this Daton, in addition Full 2019 Elutio politicated and Electrical Elution Electrical Electrical Electrical Electrical Englishment and Analyzed.	oncemonth sample	d this batch, in addrion	. POZ10 (0.19 ± 0.	THE SUR (MODE OF	MARK 0:0 = 0:31 227	Marie and Marie
NA = Not analyzed,						
- Data rece	= Data received at	ved after betch was discharged	8			

### ST. CHARLES COUNTY MONTHLY WATER SALES REPORT

DATE OF REPORT	04/01/96		
MONTH OF REPORT	MAR96		
WATER PRODUCTION WASHWATER USED			267,647,000
DELIVERED TO SYSTEM			263,356,000
MO. AMERICAN WATER	BOOSTER STATIO	าพ	185,000,000
######################################	FRANCIS HOWELL		49,200
67004132835-007	MO. HWYS & TRA		11,800
67004132850-007	M.K. FERGUSEN		190.500
67004133000-004			52,000
67004133040-015	M.K. FERGUSEN		80,000
67004133010-002	M.K. FERGUSEN		5,000
67004133020-000	M.K. FERGUSEN		850,000
67004132855-002	FRANCIS HOWELL	-	59,000
67004132890-009	M.K. FERGUSEN		
67095018237-000	M.K. FERGUSEN		17,600
		TOTAL	186,315,100
WATER DISTICT #2			
	24" EAST LINE		0
	24" WEST LINE		65,855,000
	BYPASS		0
#0		TOTAL	65,855,000
WATER DISTICT #2	NEW MELLE	TOTAL	5,176,000
NATIONAL GUARD AREA			
	BLGD S-61		11,000
	WASH RACK		9,000
		TBTAL	20,000
TOTAL WATER SALES	****	*****	257,366,100

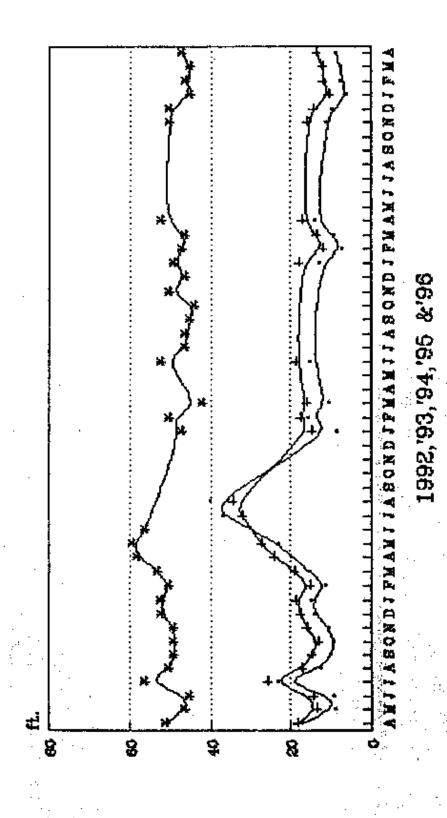
### ST. CHARLES COUNTY WATER DEPARTMENT

### INVENTORY OF CHEMICALS

		LIME		CHLORIN
PREVIOUS BALANCE		125743		13550
RECIEVED	INV. # DATE 188765.3/6 189121.3/7 189357.3/12 190027.3/14 190640.3/19 191602.3/21 192084.3/29	49360 49520 49440 49800 49200 48500 49780	INV. * DATE 3/14	8000

TOTAL AMOUNT	394380 520123	*******	9000 21550
USED	374426		15270
BALANCE	145697		6280
#/1000 GALLON	1.42		0.058
PARTS/MILLION	155		6.28
AVG. #/DAY	12078		493
# USED Y TO D	1118025.		43666

### WELL #2 WATER LEVELS



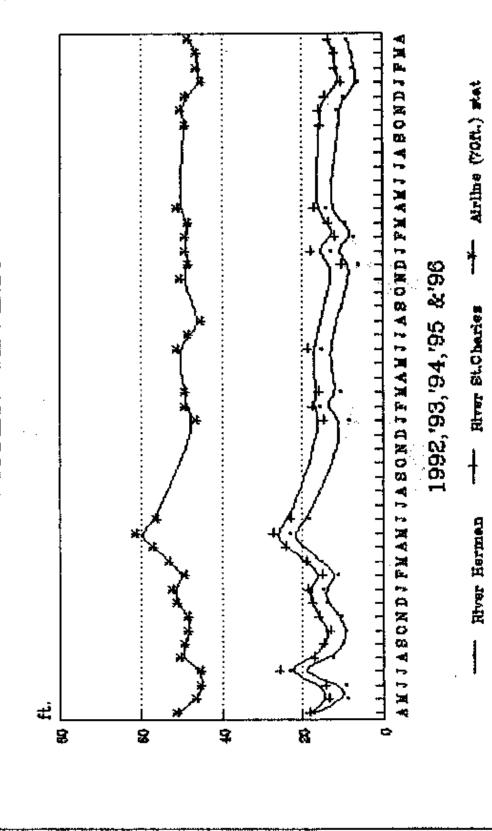
Airline static

Hiver St. Chas.

River Herman

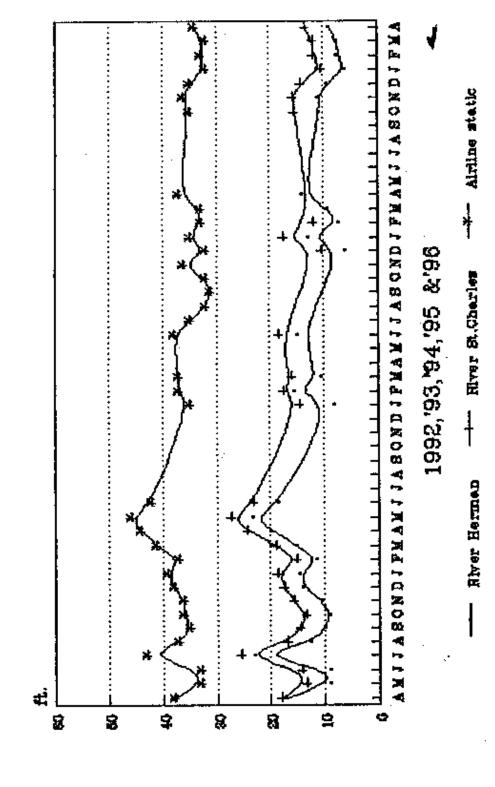
THEAT WELL, NEW PUMP, 60' AIRLINEIDEC 69

### WELL #3



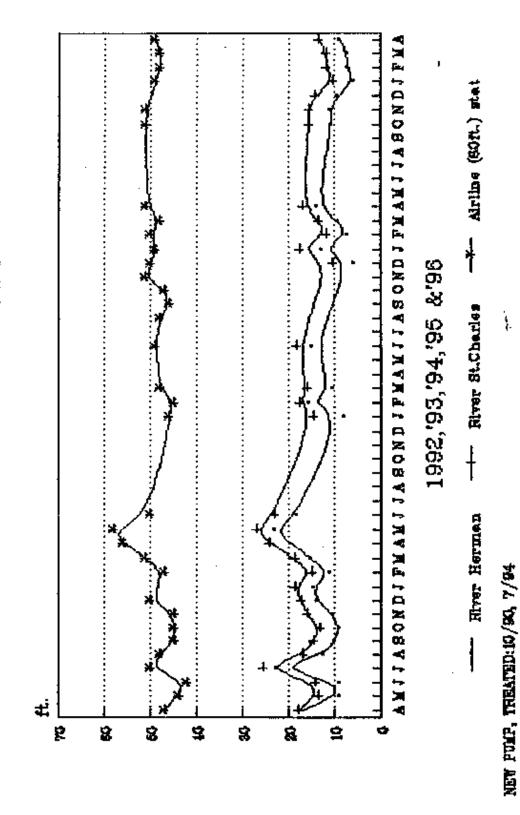
ACIDIZANIEN PUNP 2/90 ACIDIZE 6/94

### WELL #4 WATER LEVELS

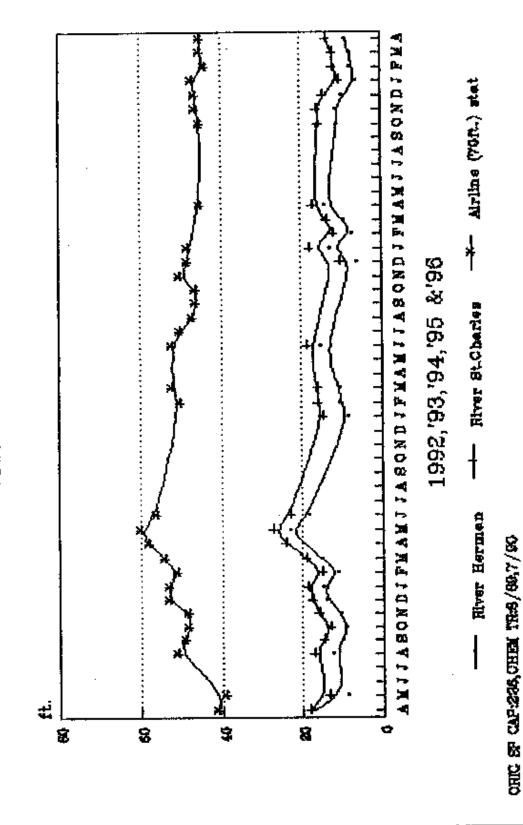


THEATTED 8/90

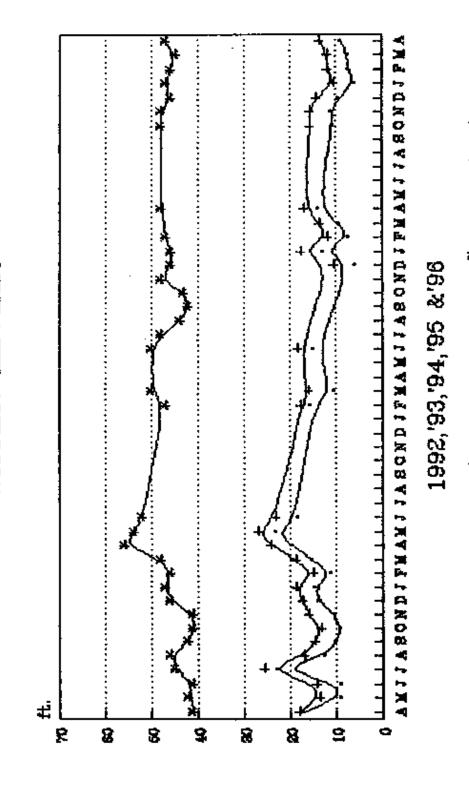
### WELL #5 WATER LEVELS



### WELL #7 WATER LEVELS



### WELL #8 WATER LEVELS

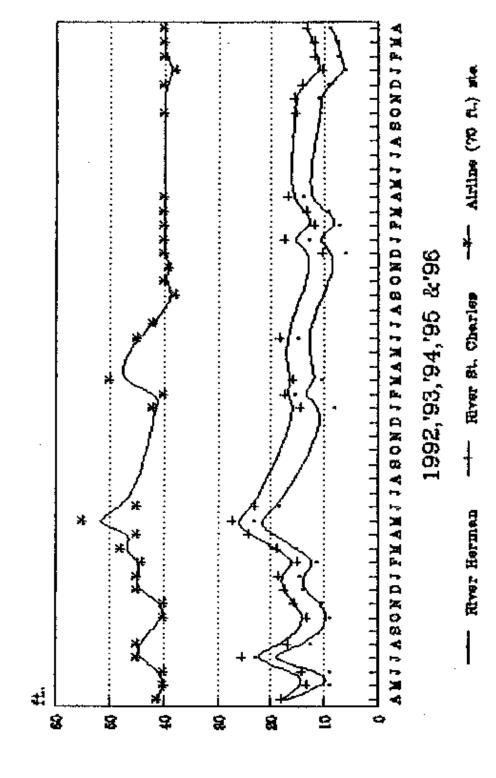


Hiver Herman

-t- Hiver St.Cheries -\* Airline (70ft.) stat

ACIDIZED 1988, 89, 94 T/NEW FURP

### WELL #9 WATER LEVELS



ACIDIZED 1/91

MONTHLY REPORT

MAY 1996

BY

Stanley M. Remington

Consulting Hydrologist

### CHEMICAL ANALYSES

An abnormally high reading of 130 Picocuries was obtained by the Department of Energy on September 28, 1995 from well number PW-3. This was for gross beta particles. The DOE subsequently retested the well in December 1995 and obtained only a gross beta reading of 5.4 pCi/l (picocuries per liter). This shows that the 130 pCi/l was in error since the high reading obtained had never occurred before. Consequently I sampled well number PW-3 on April 26, 1996. A reading of 8 +/- pCi/l of gross beta was obtained showing that the gross beta content from this well is well within the NPDES guidelines. The results are appended. During May I sampled wells PW-2 and PW-9 to determine gross alpha, gross beta and nitroaromatics. The results have not yet been received. I also took a sample from the treated water at the chemical plant site for analyses. These results have also not been received.

### II. DOE QUARTERLY REPORT - FIRST QUARTER 1996

Appended are the first six pages of the DOE's quarterly environmental data summary for the first quarterly 1996. Significant data, defined as data values that have exceeded defined "above normal" values, are discussed in the report.

Eighteen samples are discussed as exceeding normal ranges.

Most of the samples are from wells and one is from a spring.

Two samples from the St. Charles County well field showed a high reading of arsenic from observation well RMW-2. A data validation has been requested, that is another sample will be taken from the RMW-2 observation well, to recheck for arsenic. One sample showed a significantly high gross beta value from the influent raw water coming into the treatment plant. A subsequent sample from the same source showed a reading of only 5.8 pCi/l which is in the normal range for gross beta at this location. No abnormal readings have been noted from any pumping wells in the St. Charles County Well Field during May 1996.

### III. FUTURE PLANS

Because of the recent high readings of gross beta in some of the pumping wells in the St. Charles County Well Fields, I will sample two wells per month for gross alpha and gross beta, total uranium and nitroaromatics. So far all of the high readings have proved to be false, but as an extra precaution this will be done.

### IV. MISCELLANEOUS

Appended is the St. Charles County Monthly Water Sales Report for April 1996.

### AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

May 15, 1996

Stanley M. Remington 956 Broadmoor Lane St. Charles, MO 63301

RE: ATAS #15550.01

Weldon Spring

Dear Mr. Remington:

Enclosed is the analytical report for the sample received in our laboratory on April 26, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr Project Manager

**Enclosures** 

JAC/dms

2145 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON

919 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 1555001RA(249)

DATE : 05-15-96

SAMPLE MATRIX : WATER ATAS EPISODE : #15550 DATE SUBMITTED: 04-26-96

PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pci/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
PW-3	15550.01	GROSS ALPHA GROSS BETA TOTAL URANIUM (mg/L)	3 +/- 18*
PW-3	15550.01		8 +/- 6*
PW-3	15550.01		<0.005

VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.960.

<sup>/</sup>L≠ PICOCURIES PER LITER

mg/L = PARTS PER HILLION(PPM)

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. RENINGTON REPORT: 1555001X(249)

956 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE: 05-15-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX: WATER

ATAS # : 15550.01

DATE SUBMITTED: 04-26-96

DATE ANALYZED: 05-02-96

METHOD REF. : SW846-8330, EPA METHODOLOGY

PROJECT

: WELDON SPRING

SAMPLE ID

: PW-3

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION <u>LIMIT</u>	RESULTS
нмх	13.0	ND
RDX	14.0	ИD
1,3,5-TNB	7.3	ИD
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
O-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT:

STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 1555001X(249)

DATE : 05-15-96

SAMPLE MATRIX : WATER

ATAS # : METHOD BLANK
DATE SUBMITTED: 04-26-96
DATE ANALYZED : 05-02-96

METHOD REF. : SW846-8330, EPA METHODOLOGY

PROJECT : WELDON SPRING SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

TUTO 0.07 117	QUANTITATION LINIT	RESULTS
EXPLOSIVE	<u>DIRIT</u>	MOODIE
нмх	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2.6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
O-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ДИ

A TAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

REPORT: 1555001X(249)

DATE : 05-15-96

CLIENT: STANLEY M. REMINGTON

956 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

: LABORATORY CONTROL SAMPLE

DATE SUBMITTED: 04-26-96 DATE ANALYZED : 05-02-96

METHOD REF. : SW846-8330, EPA METHODOLOGY PROJECT : WELDON SPRING SAMPLE ID : LABORATORY CONTROL SAMPLE

COMPOUND	PERCENT RECOVERY						
■ HMX	109 %						
RDX	111 ቼ						
3,5-TNB	108 €						
TRYL	67 %						
1,3-DNB	125 %						
_TNT	102 %						
NITROBENZENE	103 %						
2.6 DNT	103 %						
2,4 DNT	106 %						
O-NITROTOLUENE	107 %						
p-NITROTOLUENE	100 %						
m-NITROTOLUENE	107 %						



### 

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CHAIN OF CUSTODY RECORD

rel Lab Use	3	4.2% PM	1.5.X.C.	15550:01		- The state of the							ound Requirements 1 to 2 working days		s dan da	ng days	10 working days	skip Bu			
Preservative to Chemical (see below)	\ \	\	Remarks										Turnaround Requirements 1 to 2 working days	4	skep Bulkhow s	5 working days	10 work	15 working days	Preservative codes A - none	B - HNOs C - HSOA	D · NaOH
		12,50											Received by:		Signature		Printed Name			Date/Time	
Type of Analysis	5/	2500	10016 M	X X	X								Relinguished by:					Fim		Dat	
sien	iejuo	ું ભૂ	ошь		1					<u> </u>	_	<u> </u>	1		Signature		Printed Name	Ē		Date/Time	
		# Od	Sample de Matrix Gra	¥								,	Pacsived ty.	ner den		MENANGERA				Date/Fime	
11 NGTO	Project #		Sample	10/5	0800										Signature	// //	Printed Name	T 45	# 000 B	Date/Fime	& Company):
1 Res	24.	104	Sample	4/26/76					:					Survey 3	)  )	REMINITIA		Cowing	1300		SEND RESULTS TO (Name & Company):
ATAS Client Name M. REMINGTON	Project Name SPRING		Sample ID		WATER TREAT							:	Relinquished by	12411 14 14 14 14 14 14 14 14 14 14 14 14	Signature	STAN REM	i	CHINES	10/40/11		SEND RESUL

Original to ATAS/Copy to Client



### Department of Energy

Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

May 21, 1996

DISTRIBUTION:

### QUARTERLY ENVIRONMENTAL DATA SUMMARY FOR FIRST QUARTER 1996

In support of the Weldon Spring Site Remedial Action Project (WSSRAP) Federal Facilities Agreement (FFA), enclosed is a copy of the Quarterly Environmental Data Summary (QEDS) for the First Quarter of 1996.

The data presented in this letter and attachments, comprise the QEDS. In addition to data generated by Environmental Monitoring Plan sampling, data generated by groundwater operable unit remedial investigation characterization sampling is included in the groundwater and springs tables. Also included in the surface water section are data results that support the ecological risk assessment for the Groundwater Operable Unit and the Engineering Evaluation/Cost Assessment for the Southeast Drainage. These data were received from the contract laboratories, verified by the Weldon Spring site Verification Group and, with the exception of air monitoring data, merged into the database during the First Quarter of 1996. Air monitoring data presented are the most recent complete sets of quarterly data. Air data are not stored in the database.

Significant data, defined as data values that have exceeded defined "above normal" values, are discussed in this letter for Environmental Monitoring Protection (EMP) generated data only. Data collected under Groundwater Operable Unit sampling were not evaluated in accordance with above normal procedures. In ES&H procedures above normal values are based on historic high values, DOE Derived Concentration Guides (DCGs), NPDES limits and other guidelines. The procedures also establish actions to be taken in the event that "above normal" data occur.

### DISTRIBUTION

All data received and verified during the first quarter were within a permissible range of variability, with the exception of those detailed below. Above normal occurrences are cited for spring and groundwater data. There were none for air, NPDES, or surface water. The following discussion offers a brief summary of the data that met the above-normal criteria merged during the first quarter, and updates on past reported above normal data. The enclosed tables present all the data merged into the data base during the First Quarter 1996 for groundwater, NPDES, surface water, springs and the most recent air data.

### **NPDES**

There were no above normal values for water discharged through NPDES outfalls; however, original uranium analyses for samples collected at Outfalls NP-0003 and NP-0010 on December 19, 1996, were abnormally high. Based on on-site KPA analytical results PMC personnel suspected that there was a dilution factor error. A re-analysis was conducted and the results were in line with the on-site results. The laboratory also stated that the original results were in error.

There are also several cyanide results for the site water treatment plant that are above the permit limit of 0.0075 mg/l. The water was not discharged until it was treated in the effluent ponds and re-analyzed to show compliance. The sample that showed compliance was NP-ES14-010996.

The analytical results for the NPDES outfalls are reported in the quarterly discharge monitoring report as well as in this report.

### GROUNDWATER

Weldon Spring Chemical Plant Site

Site Water Treatment Plant

\* Sample Number GW-2038-Q495

This Fourth Quarter 1995 sample was reporte fluoride (2.11 mg/l), selenium (20.0 ug/l) and selenium and silver are above baselines (15.6 this location. Subsequent data will be carefu in these values is detected, an investigation t initiated.

### Sample Number GW-2039-Q495

The third quarter groundwater sample (GW-2039-Q395) from this location was reported as having, for the first time, detectable nitroaromatic compounds. This Fourth Quarter 1995 sample is reported as having no detectable nitroaromatics. These latest analyses support the previously-reported likelihood of sample container switching with sample GW-2006-Q395, which historically has nitroaromatic detections. New highs for sulfate (61 mg/l) and chloride (52 mg/l) were reported for this fourth quarter sample. The sulfate value is above baseline (38.9 mg/l) but below the drinking water standard (250 mg/l). Subsequent data will be reviewed to determine if the sulfate concentrations continue to rise and if an investigation is warranted.

### \* Sample Number GW-2040-Q495

This Fourth Quarter 1995 sample had new high concentrations for the metals barium (881 ug/l), chromium (24.6 ug/l) and lead (8.68 ug/l). The values are all above baselines but below drinking water quality standards. If subsequent sample values for these parameters are greater than or equal to those in this sample, they will be reported as above-normal and the values will be compared to equalization basin leachate sample analyses.

### Chemical Plant Vicinity

No elevated or new high values of contaminants in groundwater samples from the chemical plant (with exception to those at the water treatment plant, as reported above) were reported for this quarter.

### Weldon Spring Quarry Site

Quarry Water Treatment Plant

Sample Numbers GW-1035-Q395 and GW-1035-Q495

The Q395 sample was reported in the previous QEDS as having levels of chromium, lead, and chloride above baselines (4.81 ug/l, 2.1 ug/l, and 14.9 mg/l, respectively). The Q495 data (Cr = 21.9 ug/l, Pb = 2.1 ug/l, and chloride = 14.9 mg/l) indicate these levels are still above baseline values. This location is hydraulically upgradient from any quarry operational impacts.

The elevated chloride value is likely due to increased use of road salt along Missouri State Route 94 (to which location MW-1035 is immediately adjacent and downgradient), and the metals values may be the result of leaching from the stainless steel well screen, which is being subjected to corrosive conditions during high chloride level events. Subsequent data will be carefully reviewed and any further excursions will be investigated.

Sample Number GW-1036-Q495

A new high value for lead was reported for this Fourth Quarter 1995 sample. The 3.0 ug/l value was above baseline (2.06 ug/l), but it was below water quality standards and not statistically significant. Subsequent sample data will be carefully reviewed.

Sample Numbers GW-1037-Q395 and GW-1037-Q495

The Q395 sample from this location was reported as having chromium (27.3 ug/l) above baseline (<3.0 ug/l). The value for Q495 (8.4 ug/l) remains above baseline, but is significantly lower than the previous quarter. The trending of this value will be monitored in subsequent samples from this location.

Sample Numbers GW-1040-Q495

The chloride concentration was a new high (13.1 mg/l) and above baseline (10.9 mg/l) for this location. The elevated value may be due to de-icing agents used in winter months or HCl used in the quarry decontamination area during remedial action efforts. Subsequent data will be reviewed and compared with equalization basin leachate analyses in order to isolate the source of the high value.

### Quarry Vicinity

\* Sample Numbers GW-1005-0495

Further evaluation of elevated sulfate values reported in previous summaries has not been possible because this monitoring well is still dry. Subsequent sample values will be evaluated when available.

Sample Numbers GW-1006-110395 and GW-1008-B695

Lead concentrations for GW-1006-110395 (6.4 µg/l) and GW-1008-B695 (3.5 µg/l) were new high values but not statistically significant (mean + 2 standard deviations). If a consecutive new high value is reported in subsequent samples the lead concentrations will be considered above-normal.

Sample Number GW-1031-B196

New high values for uranium (140 pCi/l) and sulfate (100 mg/l), though not statistically significant, were reported for this location north of the Femme Osage Slough. If subsequent new highs consecutively occur for these parameters, the situation will be considered for investigation.

St. Charles County Well Field

\* Sample Number GW-RMW2-Q495

A new high (90.1 ug/l) was reported for arsenic. This value is above drinking water standards (50 ug/l) and data validation has been requested. Subsequent data will be reviewed and reported as above-normal if two consecutive highs occur.

Sample Numbers GW-RAWW-Q495 and GW-RAWW-Q495-Re-analysis

The Q495 sample for this sample of influent to the St. Charles County Public Water Supply Treatment facility was reported in the previous QED as having a significantly elevated gross beta value. This value was believed to be an error, because none of the samples from water production wells contributing to the influent were elevated in gross beta. The sample was re-analyzed and the value was reported as 5.8 pCi/l, which is in the normal range for gross beta at this location.

### SPRINGS

Sample Number SP-6301-081495

A new high (0.42 ug/l) for 2,4,6-Trinitrotoluene (TNT) was reported for the Burgermeister Spring in August 1995. The sample was collected under base-flow conditions and the new high value is statistically insignificant.

### DISTRIBUTION

### Page 6

If you have any questions, please contact the WSSRAP Community Relations Department at (314)441-8086.

Sincerely,

Jerry S. Van Fossen

Deputy Project Manager

Jery S. Van Fossen

Weldon Spring Site

Remedial Action Project

Enclosure:

As stated

### ST. CHARLES COUNTY MONTHLY WATER SALES REPORT

	DATE OF REPORT	5/3/96		
. :	MONTH OF REPORT	APRIL		MONTHLY USAGE:
į	WATER PRODUCTION			274,312,000
	WASHNATER USED			4,543,000
	DELIVERED TO SYSTEM			269,769,000
	MD. AMERICAN WATER			ARC 000 000
ž		BOOSTER STATION		186,000,000
		FRANCIS HOWELL MO. HWYB & TRANS.		45,000 5,100
σ.	67004132830-007			489,000
	67004133040-015			839,000
	67004133010-002			53,000
	67004133020-000			20,000
	670041328554002			413,000
	67004132890=009			46,000
٠.		M.K. FERGUSEN		10,000
•			TOTAL	187,920,100
	WATER DISTICT #2			
,		24" EAST LINE		. 0
	• •	24" WEST LINE		68,453,000
•		BYPASS		0
۲.			TOTAL	68,453,000
	WATER DISTICT #2	: NEW MELLE	TOTAL	5,148,000
	NATIONAL GUARD AREA			
	INTIUNAL GUARD AREA	BLGD 8-61		2,000
	e de la companya del companya de la companya del companya de la co	WASH RACK		B6,000
•	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	WHOM KHOK	TOTAL	88,000
	, d).*	(A)		
	TOTAL WATER SALES	****	***	261,609,100
		DAILY AVG		
	WATER PRODUCTION	9, 143, 733		
	WABHWATER USED	151,433		
	DELIVERED TO SYSTEM	8,992,300		
	MO. AMERICAN WATER	6,254,003		
	WATER DISTICT #2			
	24" LINE	2,281,767		
	WATER DISTICT #2	-, <b></b> , · -·		
	NEW MELLE	171,600		
	TOTAL WATER SALES	B,720,303		

### ST. CHARLES COUNTY WATER DEPARTMENT

APRIL96		INVENTORY	OF	CHEMICA	VL5		
		LIME					CHLORIN
PREVIOUS BALANCE		194477					6740
RECIEVED	INV. # DATE			INV	,  •	DATE	
	192638.4/1	48060				4/4	8000
	193203.4/4	49620				4/18	8000
	193765.4/9	49380					
	194124.4/11	46120					
·.	194569.4/16	49440					
	195035.4/18	48800					
7 °	195602,4/23	49160					
	195959.4/25	49700					
	196656.4/30			· 1			

TOTAL AMOUNT 636777	22740
USED 369215	15800
BALANCE 267562	6940
#/1000 GALLON . 1.34	0.0575
PARTS/MILLION 149	6.39
AVG. #/DAY 12307	527
# USED Y TO D 1487240.	59466

# MONTHLY REPORT

JUNE 1996

BY

Stanley M. Remington
Consulting Hydrologist

### CHEMICAL ANALYSES

Two sets of sample results were received during June 1996 from sampling done during May 1996. These were from pumping wells PW-9 and PW-2 and the other set from the treated water from the Chemical Plant site of the Department of Energy. The results from both PW-9 and PW-2 showed that all of the chemical parameters were well within historical ranges and were all below the NPDES limits. The treated water from the Chemical Plant site also was well below the NPDES limits. The results are all appended.

The second quarter sampling was completed by me with the Department of Energy on June 24, 1996. I sampled wells RMW-2 and PW-9. These results have not yet been received. Also the treated water from the Chemical Plant site was sampled on June 28, 1996. These results have not yet been received.

### II. FUTURE PLANS

I will sample wells PW-3 and PW-4 during the latter part of July 1996. I also will attend the 24th Annual Missouri Waste Management Conference being held July 21 - 23, 1996 in Columbia, Missouri.

# III. MISCELLANEOUS

Appended is the St. Charles County Monthly Water Sales and Inventory of Chemicals - Lime - for the month of May 1996.

# AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

June 4, 1996

Stanley M. Remington 956 Broadmoor Lane St. Charles, MO 63301

RE: ATAS #15839.01

Weldon Spring

Dear Mr. Remington:

Enclosed is the analytical report for the sample received in our laboratory on May 28, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr Project Manager

Enclosures

JAC/pck

LIENT: STANLEY M. REMINGTON

REPORT: 1583901EX(221)

919 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 06-04-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # 15839.01 DATE SUBMITTED: 05-28-96

DATE EXTRACTED: 05-30-96 DATE ANALYZED: 05-31-96

METHOD REF. : SW846-8090, EPA METHODOLOGY

PROJECT : WELDON SPRING SAMPLE ID : NP-ES13-052896-C

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

### REPORTING

EXPLOSIVE	LINIT	RESULTS
2,6 DNT	0.0105	ND
2,4 DNT	0.0211	ND

# QA/OC SURROGATE RECOVERY

DECACHLOROBIPHENYL (30-150) 82 % TETRACHLORO-M-XYLENE(30-150) 91 %

IENT:

STANLEY M. REMINGTON

919 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: BK0530EX(221)

DATE : 06-04-96

SAMPLE MATRIX : WATER

ATAS #

: METHOD BLANK

DATE SUBMITTED: 05-28-96

DATE EXTRACTED: 05-30-96

DATE ANALYZED : 05-31-96

METHOD REF. : SW846-8090, EPA METHODOLOGY

PROJECT : WELDON SPRING SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

### REPORTING

EXPLOSIVE	LIMIT	results
2,6 DNT	0.010	ND
2,4 DNT	0.020	ND

## QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL (30-150) 80 % TETRACHLORO-M-XYLENE (30-150) 95 %



REPORT: QC0530EX(221)

DATE : 06-04-96

IENT:

STANLEY M. REMINGTON

919 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : LABORATORY CONTROL SAMPLE

DATE SUBMITTED: 05-28-96 DATE EXTRACTED: 05-30-96 DATE ANALYZED: 05-31-96

METHOD REF. : SW846-8090, EPA METHODOLOGY PROJECT : WELDON SPRING SAMPLE ID : LABORATORY CONTROL SAMPLE

	LCS % REC.	LCSD % REC.	RPD	
,6 DNT 2,4 DNT	81 62	8 <b>4</b> 8 <b>4</b>	4 2	

LIENT: STANLEY M. REMINGTON

919 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 1583901RA(221)

DATE : 06-04-96

SAMPLE MATRIX : WATER ATAS EPISODE : #15839 DATE SUBMITTED: 05-28-96

PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
NP-ES13-052896-C NP-ES13-052896-C NP-ES13-052896-C	15839.01 15839.01 15839.01	GROSS ALPHA GROSS BETA TOTAL URANIUM (mg/L)	4 +/- 5* 4 +/- 8* <0.005

VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1,960.

/L= PICOCURIES PRR LITER

g/L = PARTS PER MILLION (PPM)

CLIENT: STANLEY M. REMINGTON

919 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 1583901MT(221)

DATE : 06-04-96

SAMPLE MATRIX : WATER ATAS # : 15839.01 DATE SUBMITTED: 05-28-96

PROJECT: WELDON SPRING SAMPLE ID: NP-ES13-052896-C

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
		INC	RGANICS		
NITRATE	1.05	mg/L	1.56	06-03-96	SM 418B
		Þ	ETALS		
ARSENIC BARIUM CHROMIUM LEAD MANGANESE SELENIUM	5.0 1.0 1.0 3.0 1.0 5.0	ug/L ug/L ug/L ug/L ug/L ug/L	ND 72.6 2.4 ND 3.1 ND	05-31-96 05-31-96 05-31-96 05-31-96 05-31-96	SW 6010 SW 6010 SW 6010 SW 6010 SW 6010 SW 6010
MERCURY	0.20	ug/L ug/L	ND ND	05-31-96 06-03-96	SW 6010 SW 7470

ug/L = PARTS PER BILLION(PPB)

g/L = PARTS PER MILLION (PPM)

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT:

STANLEY M. REMINGTON

919 BROADMOOR LANE

ST. CHARLES, MO 63301 ATTN: STANLEY M. REMINGTON

REPORT: QC0531MT(221)

DATE : 06-04-96

### QA/QC

DESCRIPTION		<u>PARAMETER</u>	<u>results</u>	
METHOD BLANK METHOD BLANK METHOD BLANK METHOD BLANK	05-31-96 05-31-96 05-31-96 05-31-96	ARSENIC BARIUM CHROMIUM LEAD	<1.0 t <1.0 t	1g/L 1g/L 1g/L 1g/L
METHOD BLANK METHOD BLANK METHOD BLANK METHOD BLANK	05-31-96 05-31-96 06-03-96 06-03-96	MANGANESE SELENIUM MERCURY NITRATE	<1.0 t <5.0 t <0.2 t	ig/L ig/L ig/L ig/L
CONTROL SPIKE	05-31-96 05-31-96 05-31-96 05-31-96 05-31-96 05-31-96 06-03-96	ARSENIC BARIUM CHROMIUM LEAD MANGANESE SELENIUM MERCURY NITRATE	97 % F 99 % F 95 % F 98 % F 102 % F 103 % F	RECOVERY RECOVERY RECOVERY RECOVERY RECOVERY RECOVERY RECOVERY

CUSTODY / AUTHORIZATION FORM ENVIRONMENTAL SAMPLE CHAIN—OF COSTODY / AUTHORIZATIC WELDON SPRING SITE REMEDIAL ACTION PROJECT (WSSRAP) 7295 HIGHWAY 94 SOUTH, ST. CHARLES, MO 63304 TELEPHONE (314) 441—8086 TELEX (314) 447—0803

Validation Documentation 📋			(	- 1	()				ISA I ALLI, Nevő, Effedés 1172	Effective 1172
WSSRAP Contact:	Lab/P.O. #;	*					Dept/Ct	Dept/Cust Code:		
Phone Number:	Requisitioner:		St. Charles	les			!			
Request Number:	urnarou	Turnaround Tine:	🔲 Sundard	ard	Accel	Accelemted	Priority	Urgent	[_] Emergency	Rency
# Sample 1D	20	Date Sampled	Matrix	Conf.	ייוס\$טרי,		Para	2 2 2	£ & & & & & & & & & & & & & & & & & & &	Arch
1 NP- ES13-052896- C	<u> </u>	5/28/96 Water	Water		HN03	A9,Cr,	As, Cr, Hg, Mn, Se, Pb	<b>8</b> 8	5839.01	
		 	<u>;</u>	l~l liter glass	Ice	2,4-DNT				_
	_			1-1 liter H2SO4	H2S04	N03			`	
\ <u>\</u>		$\rightarrow$	->	1-4 liter	HNO3	U, Gross	as alpha, Gross	se beta	<b>}</b>	
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Sampler's Signature	Clecked By	ed By		1		l,	Technical Reviewer			
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# AUTHORIZATION

MC-P Procurement

Dalc

ESEII

Date Site Ship

Site Shipping Officer

Date

# American Technical & Analytical Services, inc.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

June 12, 1996

Stanley M. Remington 956 Broadmoor Lane St. Charles, MO 63301

RE: ATAS #15815.01-#15815.02

Weldon Spring

Dear Mr. Remington:

Enclosed are the analytical reports for the samples received in our laboratory on May 24, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr Project Manager

Enclosures

JAC/sdp

STANLEY M. REMINGTON

919 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

REPORT: 158150RA(246)

DATE : 06-12-96

SAMPLE MATRIX : WATER ATAS EPISODE : #15815 DATE SUBMITTED: 05-24-96

PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

	LIENT ID	ATAS ID	RADIONUCLIDE	result
_	PW-2	15815.01	GROSS ALPHA	3 +/- 3*
I	PW-9	15815.02	GROSS ALPHA	3 +/- 3*
ı	PW-2	15815.01	GROSS BETA	8 +/- 6*
	PW-9	15815.02	GROSS BETA	5 +/- 5*
ı	PW-2	15815.01	TOTAL URANIUM (mg/L)	<0.005
	PW-9	15815.02	TOTAL URANIUM (mg/L)	<0.005

VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.960.

/L= PICOCURIES PER LITER

g/L = PARTS PER MILLION (PPM)

LIENT: STANLEY M. REMINGTON REPORT: 158150RA(246)

919 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 06-12-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER ATAS # : 15815.01 DATE SUBMITTED: 05-24-96 DATE ANALYZED: 05-25-96

METHOD REF. : SW846-8330, EPA METHODOLOGY

PROJECT : WELDON SPRING SAMPLE ID : PW-2

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

# AT SUPPLY SPICE

	QUANTITATION	
EXPLOSIVE	LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
O-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

LIENT: STANLEY M. REMINGTON

REPORT: 158150RA(246)

919 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 06-12-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : 15815.02 DATE SUBMITTED: 05-24-96

DATE ANALYZED : 05-25-96 METHOD REF. : SW846-8330, EPA METHODOLOGY

: WELDON SPRING PROJECT

SAMPLE ID : PW-9

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

### QUANTITATION EXPLOSIVE RESULTS <u>LIMIT</u> **HMX** 13.0 ND RDX 14.0 ND1,3,5-TNB 7.3 ND TETRYL 10.0 ND 1,3-DNB 4.0 NDNITROBENZENE 7.0 ND2,6 DNT 9.4 ND5.7 2,4 DNT ND2,4,6 TNT 6.4 NDo-NITROTOLUENE 12.0 NDp-NITROTOLUENE 8.0 ND 7.9 m-NITROTOLUENE ND

LIENT: STANLEY M. REMINGTON REPORT: 158150RA(246)

919 BROADMOOR LANE

ST. CHARLES, MO 63301

DATE : 06-12-96

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : METHOD BLANK

DATE SUBMITTED: 05-24-96 DATE ANALYZED: 05-25-96

METHOD REF. : SW846-8330, EPA METHODOLOGY

PROJECT : WELDON SPRING SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

### OTTRANSPORTED

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	NTD
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
O-NITROTOLUBNE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

CLIENT: STANLEY M. REMINGTON

REPORT: 158150RA (246)

DATE : 06-12-96

919 BROADMOOR LANE

ST. CHARLES, MO 63301

ATTN: STANLEY M. REMINGTON

SAMPLE MATRIX : WATER

ATAS # : LABORATORY CONTROL SAMPLES

DATE SUBMITTED: 05-24-96 DATE ANALYZED : 05-25-96

METHOD REF. : SW846-8330, EPA METHODOLOGY

PROJECT : WELDON SPRING SAMPLE ID : LABORATORY CONTROL SAMPLES

COMPOUND	LCS PERCENT RECOVERY	LCS DUP PERCENT RECOVERY	
<u>н</u> мх	102 %	103 %	
X	112 %	109 %	
3,5-TNB	107 %	108 %	
TETRYL	<b>1</b> 05 %	107 %	
1,3-DNB	111 %	109 %	
[ PNT	103 %	103 %	
NITROBENZENE	107 ቼ	108 %	
12,6 DNT	110 %	109 %	
2,4 DNT	100 %	99 <b>%</b>	
o-nitrotoluene	103 %	101 %	
p-NITROTOLUENE	96 %	97 %	
n-NITROTOLUENE	109 %	109 %	



# AMERICAN TECHNICAL & ANALYTICAL SERVICES, Inc. 875 Fee Fee Road - Maryand Heighlig, NO 630004 35410 4544 4770 - FAX (514) 434-4770 - FA

PAGE

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CHAIN OF CUSTODY RECORD

ACA EA 21 5-24-96 Initials o N 喜己 585 9 1 to 2 working days 10 working days 15 working days Preservative codes 5 working days 3 working days Preservative ics Chemical (see below) C - H2SO4 D - N4OH B.HNO3 Remarks A - none Received by: Printed Name W **Date/Time** Signature 뜶 14.00 kg × Cothy × Type of Analysis Relinquished by: × ķ Printed Name No. of Containers Signature STANGY M. RAINERA WALTER TOSE QEIS) Sample Matrix # Od KEMINGEN FYTAN S/249C Printed Name Project # Sample Signalure Į, 5/24/96 Sample Date ST. CHARLES COUNTY ŧ ¥ Project Name CLES DON SPRINCS PLANT Form-Completed By ATAS Client Name STANLEY Sample ID 9-WA 16.3 5/24/96 Date/Time TREAT Printed Name

Original to ATAS/Copy to Client

SEND RESULTS TO (Name & Company) :

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ST. CHARLE	S COUNTY MONTHLY WATER SALES	REPORT
DATE OF REPORT	6-3-96	
HOUSE OF BERGER		
MONTH OF REPORT	MAY 1996	
WATER BRODUCTION		
WATER PRODUCTION WASHWATER USED		324,997,000
		6,677,000
DELIVERED TO SYSTEM		318,320,000
MISSOURI AMERICAN WATER		
The state of the s	BOOSTER STATION	225 000 000
67004132835-007	FRANCIS HOWELL	225,000,000
67004132850-007	MO. HWYS & TRANS.	421,000
67004133000-004	M. K. FERGUSEN	3,100
67004133040-015	M. K. FERGUSEN	436,000
67004133010-002	M. K. FERGUSEN	(154,000 105,000
67004133020-000	M. K. FERGUSEN	33,000
67004132855-002	FRANCIS HOWELL	350,000
67004132890-009	M. K. FERGUSEN	45,000
67095018237-000	M. K. FERGUSEN	11,000
	TOTAL	226,251,000
144 TES BISTON		
WATER DISTRICT #2		
	24" EAST LINE	0
	24" WEST LINE	74,360,000
	BYPASS	0
MATER DICTRICT III	TOTAL	74,360,000
WATER DISTRICT #2		
<u>.</u>	NEW MELLE	
MATIONAL CHARD AGEA	TOTAL	6,574,000
NATIONAL GUARD AREA		
	BLDG S-61	0
<u> </u>	WASH RACK	4,000
	TOTAL TOTAL	4,000
TOTAL WATER SALES	大帝市农务会会并为政治省企业企业企业企业企业企业企业企业企业企业企业企业企业企业企业企业企业企业企业	207 400 000
		307,189,000

^S	T. CHARLES COU	NTY WATER DEPA	RTMENT MAY 199	6
····	INIL	VENTORY OF CHE	1404	
· · · · · · · · · · · · · · · · · · ·		ENTORY OF CHE	MICALS	
DDEVIOUS DALANOS	<u> </u>	LIME		CHLORINE
PREVIOUS BALANCE	<u> </u>	218782		648
INVOICE#	DATE	LIME	DATE	CHLORINE
196985	5/2	49460	5/6	800
197855		49360	5/21	800
198148	5/9	48760	5/31	800
198712	5/14	49520		
199034	5/16	49060		
149003	5/21	48940		
200056	5/23	48920		
200594	5/28	49280		
	5/30	48980		
	******	442280	******	2400
	TOTAL AMOUNT	6610622		3048
	USED	481539		1839
	BALANCE	179523		1208
	1000 GALLON	1.48		
	PARTS MILLION	164.74		6.;
	AVG. PER DAY	15533		5.93
	USED Y-T-D	1,968,779		7786